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Editorial

FOOT-AND-MOUTH DISEASE AND IMPORTED MEAT.

THE report, which we publish in another column (page 162), of the result of the official visit of Lord Bledisloe to Argentina, Uruguay and Brazil, in connection with the subject of the continuance of the outbreaks of foot-and-mouth disease and the possibilities of imported meat being the carrier, will be read with great interest by every veterinarian.

For some time now it has been known that the virus of foot-and-mouth disease will remain active for as long a period as 75 days in the bone marrow of frozen carcasses, and in that of the chilled carcasses for 42 days ; whilst in the blood itself from either chilled or frozen carcasses it has been proved by experiment (as reported in the findings of the Foot-and-Mouth Research Committee) to be active from 30 to 40 days.

It was as the result of these findings that Mr. J. L. Frood, M.R.C.V.S., a Senior Veterinary Inspector of the Ministry of Agriculture and Fisheries was sent to the Argentine, and that Lord Bledisloe has more recently made this official visit.

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Sundry recommendations have been adopted, tightening up the law in Argentina regarding the inspection of cattle before slaughter and the meat for export to Great Britain, and it now remains to be seen whether or not there may hereby be removed the leakage which has caused the mysterious continuance of outbreaks of foot-and-mouth disease in this country during the past few years.

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General Articles

THE PROSPECTS OF THE VETERINARY PROFESSION IN THE ARGENTINE REPUBLIC.

By DR. MARION R. OLIESE.

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THE Argentine Republic, with its 3,000,000 square kilometres, its 38,000,000 head of cattle, and 39,000,000 sheep, is necessarily a field of action of great future for the veterinary profession. This country is at present exploited practically without the aid of anything like its full complement of veterinary surgeons; as the small number of trained professionals (approximately 1,000) cannot possibly be considered as sufficient, bearing in mind the vast possibilities that offers a country with such resources. If we consider the high quality of our cattle based nearly exclusively on English breeds, or, in other words, a class of cattle bred to give high profits, the lack of veterinarians still becomes more conspicuous. Among those high-class animals I might mention 300,000 bovines of pedigree stock and 60,000 sheep.

This small number of veterinarians can be explained easily, because it is a proved fact in the period of development of every country (a stage through which our Republic is now passing), that the first students of the universities choose one or other of the careers of physicians, lawyers, architects, etc., whose sphere of activity is mainly in the large cities, the young and inexperienced doctor finding there the attractions he would not find in the country; later, of course, with the increased number of students and subsequent increased competition in the human branch of the profession of medicine, many of them will direct their attentions to the profession which is more suitable to be practised in the country and, as a result, will choose the veterinary.

This is the state now reached by our country, and interest in veterinary profession is growing day by day, enhancing the prestige and enlarging the field of action; whilst the insignificant number of veterinarians of a few years ago is now becoming rapidly altered.

It is interesting to consider the prospects nowadays offered to a veterinary surgeon. The Argentine Frozen Meat Co., which is a real pride to our country and a speaking example of its richness in cattle, slaughter and prepare three million cattle, four million sheep and 250,000 hogs yearly. The company requires, of course, a large

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number of veterinary graduates and employs at the present time nearly a hundred of them. As regards bacteriology, this plant provides model laboratories in charge of capable veterinarians who specialise in sera and vaccines. To give an idea of the work they are doing, it is sufficient to say that they prepare about twelve million doses a year, valued at £125,000. Other Institutes have laboratories attached, chemical, anatomo-pathological, etc.

The veterinary inspection in the capital and the cities of the interior counts 230 professional men, the " División de Ganadería " 150, and the Army 50.

Hospitals for animals are not as numerous as they ought to be and are situated mainly in Buenos Aires and Rosario, having generally to attend to racehorses only, these being their principal source of income.

Altogether, all the special things mentioned above should prove very attractive for the Argentine, or foreign, professional man. Myself, I sincerely believe that the veterinarian's true sphere of activity is the camp, to contribute in this manner to the development and progress of the great cattle establishments. Many a professional man who has acted in this way occupies to-day an enviable position. This chapter of the cattle industry is, of course, not the only possibility offered, as cattle and racehorse breeding are also very important factors. These animals command very attractive prices, as, for instance, £12,700 has been paid for a shorthorn and £41,600 for a racehorse.

The above shows what great prospects the Argentine Republic offers to our profession, and although the practice of the profession is not regulated by law as yet, it is hoped that this will soon be the case.

FOOT-AND-MOUTH DISEASE FROM ABROAD.*

In 1926 a disastrous epidemic of foot-and-mouth disease occurred in Scotland, which was traced to a bacon factory which had been receiving weekly consignments of fresh carcasses of pigs from Europe for conversion into bacon. Typical lesions of the disease were found in carcasses in the factory, and they were proved by inoculation experiments at the Ministry's laboratory to be in an active stage of infection. In all, carcasses showing characteristic lesions of the disease were found in consignments from three different ships.

* A statement of the measures taken by the Ministry of Agriculture and Fisheries to prevent the introduction of foot-and-mouth disease (" Aftosa ") from South America and the object and result of Lord Bledisloe's recent mission, forming a Report of the Ministry of Agriculture and Fisheries, March 19th, 1928.

As the proof that these European carcasses had brought disease to this country was complete, and as the importation of fresh carcasses of calves, sheep and pigs from the Continent had grown from 130,000 cwt. in 1920 to 1,199,000 cwt. in 1925 and 632,000 cwt. in 1926, during which period foot-and-mouth outbreaks had been almost continuous, it seemed clear that a most important, though possibly not the only, source of infection in this country had been discovered.

The Importation of Carcases (Prohibition) Order of 1926 was promptly passed, which prohibited the importation of fresh carcasses of animals and their offals from Europe.

The Foot-and-Mouth Disease Research Committee was then asked to determine how long the virus of the disease remained active in the different parts of other carcasses when submitted to the trade conditions under which they are imported.

In January, 1927, the Committee reported (see Second Progress Report of the Committee) that they had slaughtered cattle and pigs in the early stages of foot-and-mouth disease, dressed their carcasses for market in the usual way, and kept some of them at the chilling temperature of 28° F. and others at the freezing temperature of 15° F. Bone marrow from the chilled carcasses was proved by inoculation to remain active for 42 days and from the frozen carcasses for 76 days.

The blood from either the chilled or frozen carcasses remained active for 30-40 days.

These experimental findings gave an impetus to consultations which had been taking place between the Argentine Ambassador, Dr. Richelet, his veterinary adviser, and Colonel Dunlop Young, Chief Veterinary Officer of the City Corporation, and the Ministry's officials as to what measures could be adopted to prevent the shipment of possibly infective carcasses from South America to Britain. As it is not possible by ordinary examination to tell whether a dressed carcass is infective or not, and no test short of inoculating portions of the carcass to susceptible animals is reliable, it was concluded that any measures to prevent the shipment of infected carcasses must be applied in South America where inspectors would have the advantage of seeing the animals when alive and immediately after they had been slaughtered.

Finally, certain conditions were agreed upon which were designed to get the disease under control in the South American countries which export meat to Britain, and to lessen the chance of infected cattle reaching the frigorificos (or packing houses), and to prevent the export to Great Britain of the carcasses of animals killed when in the infective stage of the disease, or of animals which had been in contact with them.

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The Governments of Argentina, Brazil, and Uruguay were asked, through the Foreign Office, to apply these conditions to the cattle trade in their respective countries so far as local conditions would permit.

Also, the three governments were asked to allow one or more of the Ministry's Senior Veterinary Inspectors to visit their countries from time to time to collaborate with the governments and the officials in solving any difficulties which might arise in the local application of these conditions.

The three Governments cordially approved the proposed visit of our inspectors, and the Argentine Government expressed the hope that, in addition to foot-and-mouth disease control work, our inspectors would find time to be present in the quarantine station at Buenos Aires when British animals were being tested with tuberculin, and also be present at the *post-mortem* examination of any reactors.

In May, 1927, Mr. John Lamb Frood, Superintending Veterinary Inspector, arrived in Buenos Aires, and has since visited Uruguay and Brazil. He has been given every facility to make a complete study of the trade and disease conditions in the interiors of the three countries and in the frigorificos (packing houses) and, with the co-operation of local officials, has suggested modifications of the original conditions which make them more effective and workable under the agricultural and trade conditions of each country.

Finally a position was reached when negotiations between the South American Governments and the Ministry were hanging fire, owing to the long range at which they were conducted, and it became obvious that the presence of someone having political knowledge and authority was necessary in South America to explain to the Government and peoples of each country the British attitude towards the suggested control of the cattle trade, and to create an atmosphere in which all persons interested in the trade would heartily co-operate to prevent diseased animals being shipped to Britain.

On the invitation of the Minister, Lord Bledisloe agreed to undertake a mission to visit all three countries to modify, if necessary, and finally ratify, the agreements which were awaiting final adjustment and approval.

Lord Bledisloe reached Buenos Aires on January 10th, 1928, and was received by the President of the Republic and the Ministers of Foreign Affairs and Agriculture, and during his 10 days' stay made a comprehensive study of every phase of the cattle trade, visited estancias, inspected railway vehicles for the transport of cattle and the methods of disinfecting them. He watched the arrival and the inspection of cattle at the frigorificos (packing houses), the examination

of their carcasses by the Government Veterinary Inspectors, the wrapping of the carcasses with cloths, and the final loading and stowing of them on the ships.

Lord Bledisloe, with some considerable experience of methods adopted in other countries, reports that the hygienic conditions of the frigorificos and the system of official veterinary inspection of the animals before and after death were as good, if not better, than any other in the world.

He found, however, that, except in the frigorificos and in the corrales (or collecting yards adjoining them) there was little or no systematic attempt to control the dissemination of the disease, and he formed the strong opinion that any attempt to impose drastic regulations and penalties immediately upon countries wholly unused to such control would defeat its own object. He realised, too, that the " Benignant " (or very mild) type of the disease which is consequent upon its endemic character under sub-tropical conditions has in the past rendered the pastoral community of Argentina somewhat callous about its prevalence and transmission, and that the reasonableness of an over-drastic policy at the present stage might be questioned by those Estancieros least conversant with the true grounds of Great Britain's demands, with consequent reluctance to comply with their Government's decrees and regulations.

On completion of this study of the conditions under which the cattle trade is conducted, Lord Bledisloe met in conference at the Ministry of Agriculture at Buenos Aires, the Minister of Agriculture, the Secretary of Agriculture and the principal officials.

A decree to give effect to the conditions suggested by the British Ministry of Agriculture had already been issued, but had not been put into effective operation. This was discussed at the conference. Lord Bledisloe suggested some modifications which were agreed to, and later embodied in a decree (of which the following is a translation) which became law on February 1st, 1928 :—

Soundness of Animal Products Destined for Export.

Whereas the intention of the Government is to ensure by all the means within its power the soundness of animal products intended for export, with a view to offering greater guarantees to consuming markets.

And Whereas :

For this purpose it is necessary to reorganise veterinary control over producing establishments (estancias), ensure strict hygienic means of transport, and intensify inspection in markets and slaughter-houses.

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The President of the Argentine nation decrees—

ARTICLE 1.—As from 1st February, 1928, no animals of the bovine, ovine, or porcine species shall be slaughtered in the frigorificos (freezing plants) unless they are accompanied by a veterinary certificate of soundness in accordance with the conditions prescribed in this decree.

ARTICLE 2.—The removal of animals of the aforesaid species for the above purpose will not be permitted unless it has been previously established by veterinary inspection that the live stock on the establishments of origin (estancia) are free from all contagious diseases, that no case has been recorded within the period prescribed by regulation, and that the stock to be removed have also been examined and found healthy two days before the date fixed for the removal.

ARTICLE 3.—No animals shall be loaded into wagons or other means of transport that have not been duly cleansed and disinfected, the transporting companies being obliged to take all the necessary measures for the strict fulfilment of this requirement.

ARTICLE 4.—Persons concerned in forwarding live stock to the freezing plants must in all cases notify the Government Livestock Bureau, in sufficient time to allow for examination as to the place of origin, its locality, means of access, loading point, date of loading, and number of head of livestock.

ARTICLE 5.—Herds from the Liniers and Tablada Markets, selling fairs, exhibitions, etc., intended for freezing plants, must be subjected to a special examination in those places apart from the verification of the condition of health of the place of origin.

ARTICLE 6.—Herds brought in on foot must in so far as origin and health are concerned, comply with the conditions laid down in the preceding articles.

ARTICLE 7.—The procedure of inspecting animals at the freezing plants before and after slaughter will be intensified, and the herd (particular consignment) shall be isolated in the event of symptoms of foot-and-mouth disease or other contagious disease being established among the animals on foot, and when such disease is ascertained on the slaughter ground the meat from the herd may not be exported.

ARTICLE 8.—In the event of the occurrence of cases referred to in the preceding article, the yards where the animals have been lodged shall be rigorously cleansed and disinfected under the supervision and control of the Veterinary inspector of the establishment, and such disinfection shall extend to the slaughter grounds and other places of possible contamination.

ARTICLE 9.—Decree of 1st July, 1924, regulations under law No. 11,228 is modified in the relevant portion, the process (of disinfection)

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not being considered as terminated until the Veterinary inspector has recognised the healthy condition of the herd.

ARTICLE 10.—Packings, coverings and wrappings of refrigerated meat intended for export must be entirely new, the use being strictly prohibited of those that have been already used and have been in contact with animals or objects likely to transmit foot-and-mouth disease.

ARTICLE 11.—For the purpose of ensuring the control of establishments of origin, and the compliance with the other dispositions of this decree, as also those laid down by the law and regulations of the Livestock Sanitary Police, the Government Livestock Bureau shall create seventy posts for Veterinary inspectors, at a salary of 350 pesos monthly with 250 pesos as travelling and subsistence allowance, this latter grant being extended to the existing staff when they are called upon to carry out this duty in rural districts.

ARTICLE 12.—Apart from measures to be adopted as a result of the application of this decree, contraventions thereof shall, when proved, be punished in accordance with the pertinent articles of Law 3, 959.

When discussing this decree with the Minister of Agriculture, the officials of that department, the railway managers and the managers of the frigorificos, Lord Bledisloe advised that though it was of the utmost importance faithfully to carry out those clauses of the decree which were designed to get disease under control within the country the really critical clauses were Nos. 2 and 7, which, if skilfully and conscientiously administered should prevent any infected carcasses being exported to Britain.

He also indicated that while the decree embodied all those precautions which Great Britain deemed reasonable and necessary in the immediate future for the due protection of her agricultural community, she might ask within the next two years in the light of experience that its provisions should be tightened up and made more drastic.

In fairness he pointed out that all foot-and-mouth infected countries from which Britain imported animal products were not situated in South America.

The Argentine Government has decided to appoint 50-70 Veterinary inspectors additional to its present staff, who will be employed to examine all cattle at the estancias and to license them, if healthy, to the frigorificos, and to inspect them on their arrival.

The success of the efforts of these inspectors will depend, of course, on the co-operation of the estancieros. In fact, the success or failure

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of the whole campaign is largely in the hands of these producers and fatteners of cattle.

Fully realising this, Lord Bledisloe accepted an invitation to attend a largely attended meeting of the Argentine Rural Society to which all the leading estancieros belong. After explaining the British reasons for requesting the Argentine Government to pass the decree in its present form, Lord Bledisloe appealed to the estancieros loyally to carry out both the letter and the spirit of the decree, not only as good citizens of the Republic, but as a matter of honour and conscience.

This appeal was enthusiastically responded to, and the Society promised its loyal support to the Government and the officials who will administer the decree.

Accompanied by Mr. John Frood, Lord Bledisloe visited Uruguay and Brazil on the return journey, and met the ministers and officials of these countries.

His reception was as cordial as it had been in Argentina, and, as in that country, the conditions laid down by the British Ministry are being complied with by regulations of the Ministries of Agriculture which will later on be embodied in the disease control laws, as legislative opportunities occur. The cattle trade conditions in Uruguay and Brazil are not identical with those in Argentina, owing to differences in the method of transport of animals to the frigorificos, and, in the latter case, to the tropical climate.

The critical clauses, Nos. 2 and 7, of the Argentine Decree, to the effect that no carcasses of affected animals or of animals which have been in contact with diseased animals shall be exported to Britain, are, however, being put into force in both Uruguay and Brazil.

Mr. Frood and another inspector of the Ministry, Mr. Rodger, recently transferred from Canada, will continue to watch British interests in this matter in South America.

The Foot-and-Mouth Disease Research Committee has been asked to continue its study of the different parts of a carcase (which include by-products, hides and fleeces) by which foot-and-mouth disease may be conveyed by a carcass imported from a country in which the disease exists.

As an additional precaution, local authorities of Britain are to be again asked vigorously to enforce the orders which prohibit bones, broken foodstuffs, or swill, and cloths in which foreign meat is wrapped, from being brought into contact with animals until they have been boiled or otherwise sterilized.

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VETERINARY EDUCATION IN INDIA.*

We abstract the following paragraphs from the Presidential address of Major Kenneth Hewlett, O.B.E., J.P., M.R.C.V.S., on the occasion of the fifth All-Indian Veterinary Conference held at Bombay in December, 1927, as bearing upon the question of Veterinary education in India.

"In 1902 there were few or no motor cars in India and the horse was an indispensable animal for all forms of rapid transit away for the railway, besides which the cult of the horse for sport and pleasure was at its height. Horse dealing was in a very prosperous and flourishing condition and consequently the veterinary surgeon was in great demand for selecting and examining horses as to soundness. The treatment, too, of equine diseases was then of considerable economic importance and the successful equine practitioner in the large cities of India reaped a golden harvest—several practitioners making by no means inconsiderable fortunes.

"Now all this has changed. Throughout India motor cars have displaced horses on the roads to a very considerable extent and in the great cities almost entirely. The cult of the horse, too, has declined for various reasons, and there is no longer the demand for horses for sport and pleasure that there used to be. In consequence of this, veterinary practitioners in the cities have been hard hit and now find it difficult to make ends meet by purely professional work, and many veterinary establishments have been closed.

"In 1902 the energies of the Civil Veterinary Department, as it then existed, were directed almost wholly towards horse and mule breeding. The whole of the Government horse breeding in India was at that time in its care. Large numbers of stallions were maintained by the Imperial Government, and these had to be supervised and breeding operations directed, mares inspected and those suitable branded and registered and coverings recorded, and foals inspected and registered. Horse fairs had to be attended and horse shows organised. Not only was the Imperial horse breeding under the Veterinary Department, but also Provincial Government horse breeding and district local boards horse breeding.

"Now all this has been changed. The Imperial horse breeding has been transferred to the Army Remount Department, the Civil Veterinary Department only continuing to deal with provincial horse breeding and district local board horse breeding in selected localities. With the improvement of the roads and the coming of the motor, the demand among the country people for *tonga* ponies and riding

* From the fifth All-Indian 1927 Veterinary Conference Special Number of the *Indian Veterinary Journal*.

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ponies has decreased, and as a result, many district local boards have ceased to maintain stallions and horse breeding has generally declined, except in certain districts of northern India, where it is still in a flourishing and prosperous condition.

" In the army, although the number of cavalry regiments has been reduced and mechanisation of transport and artillery units is making some headway, large numbers of horses and mules are still maintained and still require veterinary aid as heretofore. But ' the writing is on the wall ' and the aeroplane and the motor must in the course of time adversely affect the demand for veterinary aid in the army.

" These changes happily, however, have been counter-balanced to a great extent by the increase of interest that is being awakened in the care and treatment of cattle and their diseases, and especially their contagious diseases. There can be no doubt that the future of the veterinary profession in India lies in this direction. The cattle of India are among her greatest assets for on the cattle her agriculture depends.

" Twenty-five years ago but little had been done in this direction, although the appalling losses among cattle from disease had been recognised years before, and measures had been discussed and some measures adopted which, however, were largely inoperative. It was in 1901 that the first organised effort was made to cope with cattle diseases. It is true that for some years before that time there were a few veterinary dispensaries and veterinary graduates scattered widely over India serving under district local boards, in municipalities and in Indian States, but these were scattered units and not a provincial organisation. In October 1901, the provincial circle (as it was called) was organised in the Punjab by Col. G. K. Walker (then captain) to deal with cattle diseases by means of a provincial veterinary service organised for that purpose. On that service all the provincial departments have been modelled, and there are now provincial organisations to deal with cattle diseases in every province in India, controlling hundreds of dispensaries and treating many thousands of cattle every year.

" The changes, too, in the last 25 years have been great on the education side. In 1902 there were four veterinary colleges in India, viz. Bombay and Bengal, in which the medium of instruction was in English, and Lahore and Ajmere, in which the medium of instruction was in the vernacular. The Ajmere College has been closed and a college at Madras opened, and other colleges are under construction at Rangoon and at Patna, the sum of 7 lakhs of rupees having been sanctioned for the latter. The old Lahore College has been abandoned and a magnificent new one erected. The medium of instruction is now

English at all the colleges. A four-years course has been introduced at the Lahore College, and written examinations are now in force in almost all the colleges in India.

"Veterinary research has also been developed not only at the Imperial Institute of Veterinary Research at Muktesar, but also in the laboratories connected with the colleges.

"Although there has been progress in many fields of veterinary work in India during the last quarter of a century, the expansion of the Veterinary Department has not been as rapid as we should have liked it to be, and India still lags far behind other countries in this respect.

"A further expansion of veterinary activity in India is urgently required. A vast field awaits the research worker into animal disease, for up to the present, but the border line has been explored. Research, in my opinion, is one of the chief needs of India to-day, and things, being as they are, the only possible agency for carrying it out is an agency of the Government of India. This could take the form of a trained body of veterinary research workers serving under a central authority, but working in the provinces in collaboration with the various Provincial Veterinary Departments in the local laboratories and there investigating local problems, their work being co-ordinated by a central authority.

"Veterinary education in India requires to be reformed and adapted to the changed conditions which now exist. The most urgent need is standardisation of the various college courses. Since the abolition of the Inspector-Generalship of the Indian Veterinary Service in 1912 each provincial veterinary college in India has gone its own way, and the courses have been varied without any regard to the courses pertaining at the other colleges. The examinations, too, are not uniform even in these colleges which still maintain a three-years' course. This should be rectified. Laboratories and scientific equipment should be available in all the colleges, and the college staffs should be strengthened to such an extent as to permit of teachers specialising in their subjects and having time for study and experiment.

"A considerable increase in the cadres both of the subordinate grades and the provincial grades is necessary, if the serum simultaneous method of immunization against rinderpest is to be popularised, and also to enable the department to cope successfully with other contagious animal diseases.

"The lack of a central authority for co-ordinating measures for dealing with contagious diseases and for tendering advice to the Government of India on veterinary matters affecting the whole of the Indian Empire has been felt to be detrimental to the veterinary

profession and the progress of veterinary science in India. One of the great needs of the future is the creation of some central co-ordinating authority.

"For guidance in these future developments we look forward to the report of the Royal Commission on Agriculture in India now sitting. We hope that the veterinary profession in India will receive support and encouragement from their recommendations. We feel that our profession has a great work to do and that, if given the opportunity, we can be of immense service to India. In the past we have been subjugated to other professions and callings and our field of utility has been restricted by the lack of the support which we feel to be our due. In a vast country like India, depending almost wholly on its agriculture, and its agriculture depending entirely on the working bullock, it is strange to find apathy with regard to that science which alone can keep the livestock of the country free from the scourge of disease. But such is the case. We must endeavour to create a public opinion. It is for you as members of the veterinary profession to keep before the public the vital necessity of our profession, and this you can do as you move about your districts and among your clients by proving by your skill and your advice the great value of the profession to which you have the honour to belong."

The following is abstracted from the address of welcome given by Khan Saheb N. D. Dhakmarwala (the chairman of the Reception Committee), and is of interest to veterinarians of Great Britain as illustrating that our colleagues in India suffer from the same, or similar, disabilities in regard to professional matters :—

"The Bombay Veterinary Graduates Association has on its list about 175 members. The Bombay Presidency, including Sind with its population of nearly $2\frac{1}{2}$ crores of people, possesses about one crore of bovines. There are 119 veterinary dispensaries (103 in Bombay Presidency and 16 in Sind). There are 125 veterinary assistant surgeons, seven inspectors, one deputy superintendent and two superintendents on the establishment. Numerically, the present cadre of veterinary service is totally inadequate to cope successfully with the problems presented in any one branch of the work, either in research, teaching or executive.

"Veterinary education and veterinary research are matters of national importance. India is an enormous country, chiefly agricultural, but people do not understand the value of veterinary science to the agriculturist, with the result that veterinary help has been sparingly given, and a fruitful field for investigation and research into animal diseases has been sadly neglected. Veterinary science is still

in its infancy, and its growth should not be retarded by an economic policy.

" Also research into animal diseases is still in its infancy, and there are many avenues of veterinary science that have yet to be explored. Though horses in town are replaced by motors, there is no falling off in racing, polo and hunting, and cattle for agricultural work are increasing. Canine practice, which was nothing previously, is increasing to-day in every town. If all arable land were turned into pasture, it means an increase in the cattle of the country. Also, if the milk inspection Act be sanctioned, it will increase the consumption of pure milk and this means more cows and possibly the appointment of more veterinary officers for this purpose. Therefore, if we see motor cars, trollies and tractors increasing every day, it is not to be inferred that the horse, the bullock, the veterinary surgeon and the veterinary profession are going to be extinct. Not at all. We must remember that our profession is made up of compensations, viz. that where there is a falling off in one direction, there is an increase in another. We should therefore take a great personal interest in the livestock problems. The milk yield must be increased per cow, the weight of fleece in sheep must be increased, and the weight of poultry and other by-products also must receive attention. The veterinary surgeon will find that the owner of valuable and high-producing animals is much more likely to consult him than the owner of mediocre animals. We must remember that anything good for agriculture is good for the veterinary profession. The progress of the people in any country is largely associated with development of the animal industry; we should therefore co-operate with those engaged in livestock industry. It should be remembered that the eradication and control work is essential for the preservation of the livestock industry. We are part and parcel of agriculture as a profession. Agriculture owes an enormous debt of gratitude to the veterinary profession. Livestock is the most important of Indian farming, and the veterinary profession protects the farmer from the ravages of disease by curative and preventive measures, and by research into the causation and control of epidemics. There is, therefore, no reason why the veterinary profession should be downhearted in the least.

" Besides this, veterinary science is of enormous service to the human race, and therefore it is of vital importance and advantage that we should be allowed to associate with the medical profession as a comparative section of medicine which will prove of the utmost benefit to both human and veterinary branches of medicine.

" Also, our profession should be fully represented at every congress

of Sanitary Institute for the following reasons :—The Congress is attended by nearly every health committee in India, in addition to the medical officers of health, sanitary inspectors, sanitary engineers and other officials, and it is obvious that if a few veterinary officers were allowed to attend and read papers and discuss there, we as a profession will be considered necessary officers in the health service, specially we ought to take a prominent place in meat and milk inspection. It is thus only by keeping our profession in touch with the men who have power to make appointments to health service positions, that we can secure the recognition to which we are entitled, and keep ourselves well abreast of the times. The veterinary profession is indebted to the medical profession for raising its status. The status of the medical profession is to-day a very high one. The veterinary profession feels that it could now stand on its own legs and join the medicals for the good of public health. There is room for both the professions in the interests of humanity. The medical officer of health and the veterinary officer should work hand in hand and in complete harmony. Over half the cases of tuberculosis are due to milk, and there is only one body who could protect the public from that scourge, and that body is the veterinary profession. If tuberculosis alone could be eradicated, the veterinary profession would have done an enormous amount of good work. Besides this, there are some diseases from which animals suffer that are communicable to men, and all these require the co-operation of both these professions to eradicate them.

" The ignorance of farmers on veterinary matters is still immense, especially about contagious diseases, and it is for us to continue to enlighten them on these matters. We must take trouble to explain to them the benefits of inoculations for various contagious diseases and when they see the sense of it, they would appreciate our efforts and make up their minds to have it done. Some are slow to adopt new methods, but they can be converted if we will only lay ourselves open to try to help them. The veterinary surgeon should have more influence than anybody else with the farmers in advising them, and it should be his aim to avail himself of that opportunity on every conceivable occasion. If suitable subjects were selected for lecturing to the farmers it is sure to benefit the profession. The lectures, if possible should be made interesting and instructive by magic lantern slides and when once appreciated by the farmers, they will do more than anything to show the farmers that veterinary surgeons are not asleep, but are advancing with the times. Also lectures to the educated people should be given under the auspices of different ' societies ' or Mandals, and thus our profession brought before the eye of the public by arousing their

sympathy and interest, and thus the status of our profession would be raised.

"We must try to eradicate glanders and rabies from India as is done in Great Britain through the aid and application of veterinary research, and thus confer benefits upon men as well as the animal world. Anthrax and tuberculosis should be equally eradicated. Rinderpest, foot-and-mouth disease of cattle and distemper of dog, each supposed to belong to the ultra-visible group and which has baffled the brains of our best scientists, and cancer which is also prevalent amongst animals as in man, and certain diseases of sheep, require to be investigated and for all these our profession lives in hopes, and I trust that, before long, these desires will be realised. It is for those who work in the laboratory and those who work in the field to collaborate to gain this end. At present a series of interesting experiments is being made on the vaccination of calves as a means of rendering them immune, and thus building up tubercle-free herds. The subject of rabies is one which gave very serious cause of anxiety some time ago, but since the introduction of preventive vaccination against this disease, both in human beings and animals, it has proved a great boon, and it is hoped that one single dose of vaccination instead of 14, would be found to give immunity. It can then be adopted as a safe preventive by universal vaccination, and this method of treatment ought to become an international one. But the fact that our patients have only an economic value and the comparatively small fees obtainable, are the chief drawbacks to more work being done."

The editor of the *Indian Veterinary Journal*, commenting upon the subject of the respective addresses of the President of the Conference (Major Hewlett) and the Chairman of the Reception Committee (Khan Saheb Dhakmarwala), from which we have made the above extracts, comments as follows:—

"We invite the attention of the Government to what Mr. Hewlett thinks after nearly three decades of service in India. He says 'The expansion of the Veterinary Department has not been as rapid as we should have liked it to be, and India still lags far behind other countries in this respect. . . . Research, in my opinion, is one of the chief needs of India to-day, and things being as they are, the only possible agency for carrying it out is an agency of the Government of India. . . . A considerable increase in the cadres both of the subordinate grades and the provincial grades is necessary if the serum simultaneous method of immunization against rinderpest is to be popularised, and

also to enable the department to cope successfully with other contagious animal diseases.'

"His address assumes a tone of helpless pathos when he says 'In the past we have been subjugated to other professions and callings and our field of utility has been restricted by the lack of support which we feel to be our due. In a vast country like India, depending almost wholly on its agriculture and its agriculture depending entirely on the working bullock, it is strange to find apathy with regard to that science which alone can keep the livestock of the country free from the scourge of disease. But such is the case.'

"We wish we had the robust optimism of the Khan Saheb when he says 'Therefore if we see motor cars, trollies and tractors increasing every day, it is not to be inferred that the horse, the bullock, the veterinary surgeon and the veterinary profession are going to be extinct. Not at all.' And again, when he suggests in his own direct and simple manner, 'We must try to induce Government to see matters from our point of view,' he extorts a smile from us, and our admiration for his zeal. 'Government to see matters from our point of view!' Aye, there is the rub! It is the angle of vision that is at the root of many ills of the world to-day.

"The Khan Sahib is only giving out a partial truth when he says 'people do not understand the value of veterinary science to the agriculturist.' The Government seem to be no better judging from the rate of recruitment of hands to the profession, from the meagre number of hospitals they have been able to open till now in rural areas, from the lack of provision for research work and from the unattractive prospects held out to the profession.

"Mr. Dhakmarwala pleads for eradication of glanders, rabies, anthrax and tuberculosis from India. It is a big hope, but not one beyond the possibility of honest trial on the part of the Government and the profession.

"Both the addresses are full of suggestions and are constructive in their proposals. But both of them have carefully avoided the question of pay and prospects of the profession. Therein they have failed. They should have voiced the discontentment that is prevalent in the profession. They should have told the Government that the status of the profession is lowered by the miserable salary offered by them; that on account of it the profession is unable to create a 'public opinion' as it is but natural to associate cheapness with bad labour."

THE RESULTS OF MILK ANALYSIS IN THE UGANDA PROTECTORATE.

By G. NORMAN HALL and E. R. JONES.

From The Veterinary Pathological Laboratory, Entebbe, Uganda.

THE analyses of milk of various breeds of ungraded native cows were carried out in three Provinces of the Protectorate—Eastern Province, Western Province and Buganda Province—in order to obtain an idea of the proportion of the various constituents of the milk of cows in this country and a comparison with the average standard of English milk and further with a view to arriving at a standardisation for milk in this Protectorate.

COLLECTION OF SAMPLES.—In the majority of cases the samples were personally collected, and in others under the supervision of the European in charge, while a few were collected by trained native veterinary assistants. Out of a total of 95 samples reported, 26 were collected without supervision; and these were mostly sent in by local chiefs acting on instructions from the District Commissioners.

Technique of Analysis.

(1) SPECIFIC GRAVITY.—(*a*) This was determined by the Specific Gravity Bottle, with a necessary modification as regards temperature. As the lowest temperature of water generally obtainable was 22° C. (71·6° F.), the milk was in all cases cooled to this temperature, and the weight of the bottle filled with milk divided by the weight when filled with distilled water at the same temperature gave the S.G. at 71·6° F.

(*b*) In all the analyses carried out, the specific gravity was determined by means of a Lactometer, also at the lowest temperature obtainable—71·6° F.

(*c*) Correction to Standard Temperature: The Specific Gravity as obtained in (*a*) was corrected to the Standard Temperature of 60° F. by means of the Richmond Slide Rule.

(2) ESTIMATION OF TOTAL SOLIDS.—The method used consisted in weighing 10 c.c. of the milk in a nickel or porcelain evaporating dish, adding one drop of absolute alcohol and one of acetic acid to prevent the formation of a "skin," and then evaporating on a water-bath until no further loss of weight occurred, which usually took from two to three hours.

From the weight of solids left after evaporation, the percentage of total solids in the milk was obtained by calculation.

From the percentage of total solids present, the percentage of water was obtained directly by subtraction.

(3) ESTIMATION OF FAT.—Babcock Method.—The special apparatus for this method consists of four milk bottles, with necks graduated from 0 to 10, and a special four-bucket centrifuge.

Briefly, the method consists in measuring 17·6 c.c. of the milk into the bottle, then adding 17·5 c.c. of commercial sulphuric acid

Milk Analysis—Uganda Protectorate.
Summary of Results.

		No.	Specific Gravity.	Total Solids.	Fat.	Solid Non-Fat	Water.
			Mean.	%	%	%	%
E.P.	I. Budama (aver.)	(17)	1032·5	14·650	5·320	9·330	85·350
	II. Teso ,,	(17)	1032 5	14·170	4·920	9·250	85·830
W.P.	III. Ankole ,,	(16)	1030·5	15·298	6·094	9·204	84·702
	IV. Kigezi ,,	(16)	1032·3	13·930	4·650	9·280	86·070
B.P.	V. Masaka ,,	(13)	1031·0	14·770	5·490	9·280	85·230
	VI. Kyagwe ,,	(16)	1033·3	14·640	4·980	9·660	85·360
AVERAGE UGANDA PROTECTORATE		(95)	1032·05	14·568	5·232	9·336	85·432
(95 Samples: 76 mixed, 19 individual.)	Minimum ..		1026·0	9·170	0·900	7·680	81·810
	Maximum ..		1038·0	18·580	9·700	10·450	90·830
COMPOSITION ENGLISH MILK—Average (from Richmond) ..			1032·0	12·660	3·750	8·910	87·340
BOARD OF AGRICULTURE OR LEGAL STANDARDS			—	—	3·000	8·500	—
(Richmond)—Minimum ..			1013·5	9·160	1·040	4·900	80·850
Maximum ..			1039·7	19·150	12·520	10·600	90·840
EGYPTIAN COW'S MILK—Average (Hogan and Azadian; from Richmond's "Dairy Chemistry.')			—	14·630	5·440	9·190	85·370

DISTRICT VARIATIONS.

	Fat. %	Non-Fatty Solids. %
I. Budama	3·0 to 9·7	8·840 to 9·800
II. Teso	0·9 to 7·5	8·130 to 10·450
III. Ankole	3·4 to 9·3	7·680 to 10·110
IV. Kigezi	2·6 to 6·4	8·220 to 9·870
V. Masaka	3·5 to 6·7	8·530 to 9·750
VI. Kyagwe	2·5 to 8·1	9·260 to 10·010

BEST QUALITY MILK (DISTRICTS).—From the averages given above, it will be seen that the milk of Ankole District is the richest, having an average fat content of 6·09 per cent.

(of S.G. 1·82 to 1·83; or approximately 95 vols. per cent.), mixing thoroughly by rotation, filling up to the zero mark with hot water, and then centrifuging for one to two minutes. A slight modification was made, adding 2 c.c. of amyl alcohol after the sulphuric acid, to facilitate rapid separation of the fat. (This modification is based on the Leffman-Beam and Gerber methods.) The fat is read off while the bottle is still hot.

From the percentage of fat, the percentage of non-fatty solids was obtained by subtraction from the percentage of total solids.

(4) CHECK ON ACCURACY OF ANALYSES.—A check on the figures obtained, in all the analyses made was made by means of the well-known formula of Richmond:—

$$\text{Total Solids} = \frac{\text{S.G. } 1{\cdot}2 \times \text{Fat. } 0{\cdot}14}{4}.$$

(5) COMPILATION OF RESULTS.—Deletion was made in respect of all samples not collected under supervision in which the non-fatty solids was below 8·5 per cent.—such samples being presumed to be adulterated.

The following tables (I to VI), show the results obtained, the analyses being grouped according to the source of each batch of samples.

Observations.

I.—COMPARISON WITH ENGLISH MILK—(*a*) FAT.—The following table has been prepared from the 95 samples of milk reported upon (of which 76 were "mixed" and 19 "individuals"), in conjunction with Tables LVIII and LIX in H. D. Richmond's "Dairy Chemistry."

	Uganda Milk.	English Milk.
Percentage of Samples above 10·0% Fat ..	0·00	0·05
,, ,, 8·0 to 10·0% ,, ..	4·21	0·44
,, ,, 7·0 to 8·0% ,, ..	9·47	1·10
,, ,, 6·0 to 7·0% ,, ..	18·95	5·19
,, ,, 5·0 to 6·0% ,, ..	21·05	17·05
,, ,, 4·0 to 5·0% ,, ..	27·37	43·25
,, ,, 3·5 to 4·0% ,, ..	6·32	19·45
,, ,, 3·0 to 3·5% ,, ..	8·42	9·74
,, ,, below 3·0% ,, ..	4·21	3·73
	100·00	100·00
From which is obtained:—		
Percentage of Samples above 5·0% Fat ..	53·68	23·83
,, ,, 4·0 to 5·0% ,, ..	27·37	43·25
,, ,, 3·5 to 4·0% ,, ..	6·32	19·45
,, ,, below 3·5% ,, ..	12·63	13·47

CONCLUSION.—(1) As the above figures show, over one-half of the Uganda milks contain above 5 per cent. fat, compared with under one-quarter of all English milks; or as over 80 per cent. of Uganda milks are over 4 per cent. fat, compared with only 67 per cent. of English milks; hence it would seem that the Uganda Fat Standard should be raised above the English Fat Standard (3 per cent.).

(2) From the comparatively small number of analyses made on Uganda milks it is undesirable as yet to definitely state what should be the Uganda Fat Standard; but the above figures would suggest that the standard will be found to be about 4 per cent.

II.—COMPARISON WITH ENGLISH MILK—(*b*) NON-FATTY SOLIDS.—The following table has been prepared from the same data as the table for fat comparison. N.F.S.=Solids Non-Fat.

	Uganda Milk.	English Milk.
Percentage of Samples above 10·0% N.F.S.	4·21	0·79
,, ,, 9·5 to 10·0% ,,	32·63	6·05
,, ,, 9·0 to 9·5% ,,	44·21	38·52
,, ,, 8·5 to 9·0% ,,	11·58	47·12
,, ,, below 8·5% ,,	7·37	7·52
	100·00	100·00
From which is obtained:—		
Percentage of Samples above 9·0% N.F.S.	81·05	45·36
,, ,, below 9·0% ,,	18·95	54·64

CONCLUSIONS.—The above figures show (1) that over 80 per cent. of the Uganda milks contain above 9 per cent. solids (non-fat), compared with only 45 per cent. of all English milks; hence, it would seem that the Uganda Standard for Non-Fatty Solids should be raised above the English Standard (8·5 per cent.).

(2) The number of analyses made is hardly sufficient to allow the fixing of a standard for non-fatty solids in this protectorate, but from the above data it is probable that the standard will be about 9 per cent.

III.—SPECIFIC GRAVITY—(1) ERROR OF LACTOMETER.—It has already been mentioned when describing the technique employed for estimating the specific gravity, that readings were also recorded of the S.G. by the lactometer—taken at the same temperature—71·6° F.

Results of readings obtained in 93 analyses where it was possible to employ both methods, show :—

1 case where Lactometer was in agreement with S.G. by Bottle.
8 cases " " *above* reading of "
84 " " " *below* " "

MEAN DIFFERENCE (LACTOMETER) = 1·0 degree *below* "
Minimum = 1·0 " *above* "
Maximum = 2·7 degrees *below* "

(2) VALUE OF SPECIFIC GRAVITY READING.—The summary of results show the mean specific gravity of the 95 samples reported upon agrees with that given for English milk, i.e. 1032·0, with variations in the six districts from 1030·5 to 1033·3. But although the variations of the averages are not marked, the variations of the actual samples are considerable; the minimum being 1026 and the maximum 1038.

Owing to the large percentage of samples containing over 5 per cent. of fat, it was to be expected that the specific gravity would be below normal in a correspondingly large number of samples—and such was found to be the case.

CONCLUSION.—That a low specific gravity, even to the extent of 1025·0, cannot be assumed to indicate adulteration of the sample; as samples have been analysed and found unadulterated, with a specific gravity as low as 1025·0.

Specific Gravity.				Total Solids. %	Fat. %	Solids Non-Fat. %	Water. %
Lacto-meter.	Bottle.	True S.G.					
1027·0	1028·2	1029·7	Original Sample.	16·09	8·0	8·09	83·91
1024·5	1025·9	1027·3	±10% Water.	14·93	7·2	7·73	85·07
1022·0	1023·0	1024·3	±25% Water.	12·91	6·3	6·61	87·09
1027·5	1028·5	1030·0	±10% Cow's Urine	15·62	7·2	8·42	84·38
1028·0	1029·0	1030·6	±25% Cow's Urine	15·91	6·3	9·61	84·09

NOTE.—The specimen of cow's urine used in this experiment had a higher S.G. than normal, being 1032·8 at 60° F., whereas the normal for cow's urine, according to Smith's "Physiology," varies from 1007-1030.

IV.—Adulteration of Uganda Milk.—The object of this work has been purely to gain a comparative knowledge of the composition of milk in different parts of the Protectorate, and among different breeds of cattle, and form a general idea of the average composition of Uganda milk; hence, only a very small amount of work was done in connection with adulteration of milk.

Diluting a genuine sample of milk with 10 per cent. and 25 per cent. of added water, and 10 per cent. and 25 per cent. of added cow's urine, which is very frequently used as a dilutent in this country, respectively, gave the following conclusions:—

Conclusions.—(1) Whereas dilution of milk with water proportionately lowers the specific gravity, and decreases the solids non-fat; dilution with cow's urine (in the experiment above) directly raises the specific gravity, and increases the solids non-fat. (Note.—As S.G. of urine in question was above normal, hence the solids in the urine must have been above 8·5 per cent., which is the figure given in Banham's Posology.)

(2) From the figures obtained in the experiment, it will be seen that (*a*) in the case of adulteration with water, the specific gravity, percentage of fat, and percentage of solids non-fat, are all directly *decreased*; whereas (*b*) in the case of adulteration with cow's urine, only the percentage of fat is directly decreased—the specific gravity and percentage of solids non-fat being actually slightly increased. Hence, adulteration with urine would appear difficult of detection, unless in such quantity as was readily perceptible by smell or taste.

V.—Value of Lactometer Reading.—Of the 95 analyses made, 23 showed a reading of 1028·0 or less, by the lactometer, and these in cases where the milk was obviously *unadulterated*, as the percentage of solids non-fat were normal or above:—

S.G. Lactometer.	% Fat.	S.G. Lactometer.	% Fat.
1026·0	9·7	1028·0	6·6
1026·0	8·8	1027·0	6·4
1028·0	5·6	1028·0	6·0
1028·0	7·0	1028·0	6·4
1028·0	5·5	1028·0	5·8
1025·0	9·3	1028·0	5·8
1027·5	7·0	1027·0	6·7
1027·0	7·4	1028·0	6·1
1027·5	7·9	1028·0	6·1
1027·5	5·8	1028·0	6·6
1027·5	4·6	1027·0	8·1
1027·5	7·5		

The graduations on the lactometer read thus :—

S.G. 1032	.. ..	M (100% Milk)
S.G. 1024	.. ..	¾ (75% „)
S.G. 1016	.. ..	½ (50% „)
S.G. 1008	.. ..	¼ (25% „)

Hence S.G. 1028 would equal ⅞ (87% Milk).

CONCLUSIONS.—(1) As the lowest reading by the lactometer for a genuine milk was 1025, it would appear that the only *certain* limit to denote adulteration would be 1025 by the lactometer.

(2) As the 23 samples quoted above were not adulterated, and were all of S.G. 1028 or below, the graduations of the lactometer are obviously inapplicable to Uganda milk.

REPORT OF SOME OBSERVATIONS UPON "SPECIFIC HYSTERIA" or "FRIGHT DISEASE" IN DOGS.

By JOHN W. H. EYRE, F.R.S. Edin., M.D., M.S.

Professor of Bacteriology, University of London (from the Bacteriological Department, Guy's Hospital).

OVER a year ago Capt. Louis Sewell, M.R.C.V.S., described to me, under the title of Specific Hysteria, the symptoms of a disease occurring in dogs which was attracting considerable attention by reason of its, apparently, epidemic character. In the course of the inquiry he undertook in this connection some of the investigations carried out in my laboratory, and opportunities were afforded for observing a few of the affected animals, both *ante-* and *post-mortem*. In the first place, it is desirable briefly to summarise the available information as to the distribution of the disease and its symptoms.

Historical.

It has been suggested that the disease suddenly appeared in Ireland in the early years of the present century, but in a very short time completely disappeared. More recently it has been noted in the Southern States of N. America, from whence it is supposed to have been imported into England, and the fact that the present invasion was first noted in and around Liverpool affords some support to this suggestion. It soon spread to Southern Lancashire, Cheshire and parts of North Wales, then to Yorkshire, Westmorland and even into the Western portions of Scotland and in and around Dublin. Sporadic cases and small epidemics have also been noted in the Southern parts of England.

Symptoms.

The disease attacks dogs of all breeds and of all ages, though more severe in puppies and young dogs; is more prevalent in spring and summer; is protean in its symptomatology; perhaps the type most commonly met with is that in which, without preliminary malaise, an apparently healthy normal dog will commence barking, howling and screaming and often foaming at the mouth, the eyes becoming congested and red; if in the open it will rush off and try to hide itself; if confined in a walled space it will rush madly about, trying to climb the walls or hide in dark corners, often injuring itself more or less seriously; throughout the attack exhibiting all the appearances of suffering intense pain and fright.

The duration of the attack may be anything from two to 15 minutes and is followed by a condition of exhaustion, from which, however, the dog completely recovers in an hour or two. Attacks are liable to recur at intervals of a few days (three to five) and the total duration of the illness may extend to some weeks, after which the affected animal appears to become immune.

At its first appearance the disease was not in itself fatal, although deaths were recorded as a result of injuries inflicted when dashing at immovable objects. Towards the end of the past summer, however, the disease presented symptoms of increased severity and in some kennels the occupants were said to be "dying like flies."

(Despite this state of affairs it has been difficult to obtain material for investigation and only six animals have been available during a period of 19 months for *post-mortem* examination; and two of these were the subjects of acute streptococcic infection and not cases of Specific Hysteria—thus exemplifying the difficulty of diagnosis.)

Once a case has occurred in kennels it is common for many others of the inmates to develop the disease in quick succession.

Etiology.

By many, the disease is assumed to be a type of hysteria and the further incidence of cases in a kennel to be due to mimicry of the originally infected animal by its kennel mates.

As might naturally be expected from the epidemic character of the disease, food and water have been suggested in turn as the vehicle conveying the hypothetical contagium. In the early days of the disease quite a number of owners ascribed the disease to the use of one particular proprietary food and the removal of all forms of biscuit from the dietary was advocated as the only cure. But the examination of material from a batch of suspected food that had been supplied to kennels in which the disease subsequently appeared

failed to yield any evidence in support of this opinion; and careful inquiries conducted by Capt. Louis Sewell and others have shown that the disease occurs quite independently of any one particular form of food.

In one instance the *water* supply from a kennel in which the disease had broken out was submitted to bacterioscopic examination, but here again no evidence of the existence of any abnormal bacteria could be detected; if, however, the disease is due to a specific and particulate virus, the assumption would still hold good that water standing in vessels for drinking purposes was contaminated by an infected animal and the virus was subsequently transferred to a healthy animal drinking from the same vessel.

Some owners (e.g. Zertgeist, in correspondence column of "Our Dogs," April 1st, 1927) have ascribed the phenomena of this disease to peripheral irritation due to parasites—*symbiotes auricularum*—present in the ear, but whilst infestations of this nature may well be a contributory factor, not one of the cases of the disease that has come under my personal observation has yielded any evidence whatever of such infestation. On the other hand, out of the six dogs examined *post-mortem*, three have harboured intestinal worms.

Other observers have attributed the disease to infection by a specific micro-organism and it is from this aspect that the disease has been investigated in my laboratories—unfortunately, owing to the restricted supply of material, this investigation has been very limited in extent.

But the results so far obtained may be summarised by saying that beyond occasional evidence of peripheral irritation, no bacterial entity has been consistently present. In other words, none of the bacteria that have been isolated from the tissues of the affected animal has complied with the Criteria of Specificity as enunciated by Koch.

Again, the kinship of this disease in dogs to encephalitis lethargica in man has been postulated, but no direct evidence is available in support of this theory. In this connection it is interesting to note the recent references that have occurred in German literature to the "lightning spasms" of childhood (see also "Monatschrift für Kinderheilkunde," 1927, July), discussed by Dr. Lehnikuhl, consisting essentially of tonic focal spasms originating in the pallidum, presumably due to some antenatal malformation of the central nervous system, either in the nature of inhibited development or the result of inflammation or hæmorrhage within the brain occurring before or shortly after birth, the consequences of which only become apparent some four to six months later, although the onset may be delayed up to the age of two or three years.

XUM

NOTE.—Since writing the above an annotation under the heading "Fright Disease" has appeared in the "Lancet" of February 4th, 1928 (page 249) supporting Professor Hobday's appeal for funds for research into this disease at the Royal Veterinary College; and was followed (February 11th) by a letter in the correspondence column of the "Lancet" by Dr. Gordon Ward, of Sevenoaks, drawing attention to the association in kennels of "Fright Disease" and encephalitis lethargica and suggesting the possibility that the dog may be the unconscious host carrying the virus of encephalitis to man.

DETAILED REPORTS OF MATERIAL SUBMITTED FOR EXAMINATION.

I.—MATERIAL COLLECTED JULY 8TH, 1926, AND RECEIVED JULY 9TH, 1926, PER CAPT. SEWELL.

A.—"GOOSE" PUPPY, 2½ MONTHS.

History.—First attack, July 3rd; second attack, July 6th. Each attack three to five minutes. *Material Examined.*—Swab of peripheral blood. *Result.*—Sterile.

B.—"BESSIE" PUPPY, SEALYHAM, 4 MONTHS.

Material Examined.—Swab of peripheral blood. *Result.*—Cultures gave a growth of *Staphylococcus albus.*

C.—BLACK AND WHITE POINTER, 9 MONTHS.

History.—First attack, July 2nd, three minutes; second attack, July 6th; third attack, July 7th, eight to ten minutes. *Material Examined.*—Swab of peripheral blood. *Result.*—Cultures gave a growth of *Staphylococcus albus.*

II.—MATERIAL COLLECTED PERSONALLY.

D.—POINTER DOG PUPPY, 2½ MONTHS.

Received per Capt. Sewell from the Duchess of Montrose, Isle of Arran Kennels. *History.*—First attack, July 3rd, with brother and sister; second attack, July 5th; third attack, July 7th.

Material Examined July 9th, 1926.—Blood Culture. Various tubes of culture media were inoculated with blood withdrawn aseptically from the pepliteal vein. These, after five days' incubation at 37° C., remained sterile.

On July 12th this puppy was killed by chloroform vapour and examined *post-mortem.* Nothing abnormal could be detected in any of the organs, except that—

(1) the peritoneal cavity contained a large excess of clear, serous fluid, which on centrifugalisation showed the presence of a few epithelial cells and a slight excess of leucocytes, but no obvious pus; the presence of a few Gram negative diplo- and tetra-

cocci was also noted; cultivations gave a mixed growth of the *Staphylococcus albus* (or citreus), the *Sarcina fæcalis* and a Gram negative bacillus, which on further culture proved to be *B. coli*;

(2) the urine, which was chemically and microscopically normal, gave a scanty growth of *Staphylococcus albus*. (Full details, see p. 191.)

E.—POINTER BITCH, "BERYL," 5–6 MONTHS.

History.—First attack, June 24th; second attack, June 27th or 28th; third attack, July 1st; fourth attack, July 6th.

Material Examined July 9th, 1926.—Blood Culture. This after five days' incubation at 37° C. showed a growth in one of the tubes of *B. mesentericus*, presumably an accidental contamination, as the animal kicked violently at the moment when the needle was being withdrawn from the vein and it is possible that the point touched some unsterilised hair.

Fæces. A specimen of fæces, when examined, showed no evidence of the presence of worms or ova. A trace of blood was demonstrated by the benzidene test, too small to be placed in evidence by the guiacum test. Microscopical film preparations showed the bacteria present to be mainly Gram positive bacilli and cocci. *Bacillus coli* and *Streptococcus fæcalis* were present in normal proportions, together with numerous strains of the longus type.

Material Examined July 19th, 1926.—Blood Culture. Further cultures were prepared from blood taken directly from the vein and, in all, ten various tubes of media were inoculated. Of these, three were obviously contaminated, yielding a growth of *B. subtilis* and *B. welchii*. The remainder all gave a growth of *Staphylococcus*, which one would term *albus*, although it had a very faint yellowish tinge—not sufficient to justify labelling it either "citreus" or "aureus."

Serological Tests.—As cultural tests had shown the almost exact correspondence (the only variation noted in a few instances being the presence of a faint tinge of lemon colour in the colonies upon agar) of the various strains of *Staphylococcus* isolated from each of the animals C, D and E, the sera of the black and white pointer C, the pointer dog puppy D, and the pointer bitch E were tested for the possible presence of specific agglutinins.

It was then found that the *Staphylococci* were agglutinated in dilutions up to 1-100 by each of the sera—evidence strongly suggestive of the close relationship and possible infectivity of all the available strains of *Staphylococci* recovered from the dogs in question.

F.—RED SETTER DOG, "RANGER," 11 MONTHS.

Owner.—Mrs. Comerford, Rathdrum, Co. Wicklow.

History.—First attack, August; second attack, August (three weeks later); third attack, November 6th; fourth attack, November 7th.

Material Examined November 11th, 1926.—Blood Culture. Six tubes were seeded with blood; one tube was contaminated by *B. mesentericus*: the five remaining tubes were sterile up to the end of seven days' incubation at 37° C.

G.—LURCHER DOG, FULL GROWN.

History of several recent attacks.

Material Examined November 13th, 1926.—*Post-mortem* Examination.—Nothing abnormal could be detected in any of the organs, except that—

(1) a large tenia was included in the contents of the intestinal tract;

(2) the mucous membrane of the bowel appeared fairly normal until just below the cæcum: here it was congested and hyperæmic areas first made their appearance. Lower down in the colon the mucous membrane appeared thickened and œdematous, and in places ulcerated, together with areas of hyperæmia extending down to the lower end of the rectum;

(3) from the kidney a *Streptococcus pyogenes longus* was isolated by culture. (Full details, see p. 192.)

H.—SPANIEL DOG.

Material Examined January 25th, 1927.—Blood Culture. Tubes remained sterile up to the end of seven days' incubation at 37° C.

J.—BRINDLE BULL.

History of several recent attacks.

Material Examined January 31st, 1927.—Blood Culture. Tubes remained sterile up to the end of seven days' incubation at 37° C.

Serological Tests.—Blood serum from each of the dogs H and J was tested against the *Staphylococcus* strains isolated from dogs C, D and E, and against the *Streptococcus* isolated from dog G.

The results so far as concerned the serum from H were completely negative, but the serum from J agglutinated the *Staphylococci* in dilutions up to 1-200 (partial), but had no action on the *Streptococcus*.

K.—WHITE TERRIER BITCH.

Material Examined March 8th, 1927.—Blood Culture, *ante-mortem*. These tubes remained sterile up to the end of seven days' incubation at 37° C. *Post-mortem* Examination: No abnormal feature was encountered during the full *post-mortem* examination of this animal. (Full details, see p. 193.)

L.—BROWN DOG.

Material Examined March 8th, 1927.—Full *post-mortem* Examina-

tion.—Nothing abnormal could be detected in any of the organs, save—

(1) congestion of the trachea and bronchi ;

(2) the presence of a coccus of the Catarrhalis group and a filamentous Gram negative bacillus (apparently identical with *Bacillus bronchi-septicus*) in the large bronchi ;

(3) the presence of a large mature tape worm in the intestinal canal. (Full details, see p. 194.)

M.—Foxhound Dog.

History of fits ascribed to "Nutrive" dog biscuits.

Material Examined November 7th, 1927.—Full *post-mortem* Examination.—The abnormal features in connection with this *post-mortem* were—

(1) the isolation of the *Streptococcus pyogenes longus* from the heart blood ;

(2) the isolation of the same organism from the peritoneal fluid ; and

(3) the existence of many rings of congestion all along the small intestine, although no large hæmorrhage or actual ulcer was observed. (Full details, see p. 195.)

The fits in this case may well have been due to the presence of the *Streptococcus longus* in heart blood, etc., suggesting that the animal was in the early stages of an acute blood poisoning.

N.—Whippet Bitch.

History of fits ascribed to Spratt's dog biscuits.

Material Examined January 2nd, 1928.—Full *post-mortem* Examination.—This animal was stated to have died about Xmas, but was received in the laboratory in good condition, probably due to the intense cold that had prevailed during the interval between death and *post-mortem* examination, and it is interesting to note that so many of the cultures established from various organs of this animal remained sterile ; and it is also interesting to note that the *Streptococcus hæmolyticus*, which was undoubtedly the cause of the pericarditis, had survived the low temperature and developed in certain of the cultivations.

The abnormalities observed in this case were—

(1) distension of the pericardium with dark, blood-stained fluid, containing Gram positive chain cocci and yielding on culture a pure growth of the *Streptococcus pyogenes longus* (*hæmolyticus*) ;

(2) the isolation by culture of a similar *Streptococcus pyogenes longus* (*hæmolyticus*) from the heart blood ;

(3) enlargement of the spleen. (Full details, see p. 196.)

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ACCESSORY INVESTIGATIONS.

(FOOD).

I.—RODNIM. Recovered November 16th, 1926, per Messrs. Spratt's, Limited.

A sample of the Spratt's Dog Meal "Rodnim," which had been returned by some purchasers to Messrs. Spratt's as having been responsible for the incidence of the disease in their kennels, was handed on to me by the manufacturers. On Macroscopical examination the material consisted of two distinct varieties of food—the one, particles of biscuit, whitish but friable, which microscopically consisted of starch; and the other, dark brown particles, tough, elastic and soft, which microscopically consisted of muscle fibre.

Portions of each were selected for bacterioscopic and microscopic examination. The mycelium of various moulds, representing the penecilium and aspergillus families, were present, together with many yeast and torula cells. No microscopical structures suggestive of ergotism could be detected. The bacteria present were all of the common air-borne saprophytes—*Mesentericus*, *Subtilis*, etc.; no pathogenic bacteria could be detected.

II.—DRINKING WATER. Report on sample of drinking water received July 8th, 1926, per Capt. Louis Sewell.

(1) Number of micro-organisms per cubic centimetre living and capable of development upon gelatine at 22° C.

250

(2) Number of micro-organisms per cubic centimetre living and capable of development upon agar at 37° C.

35

Ratio of 1 : 2 = 7 : 1.

(3) Microbes of Indication :—

B. coli, absent from 10 c.c.

Streptococci, absent from 10 c.c.

As judged by the above bacteriological tests this was shown to be a good specimen of potable water, containing very few organisms per cubic centimetre and no *B. coli* or pathogenic bacteria in the quantity (10 c.c.) submitted for examination.

POST-MORTEM EXAMINATION.

In every case (except that of the Whippet N, which died a week before its receipt in the laboratory) the animals were destroyed by chloroform vapour. After examination of the external features of the cadaver the abdominal cavity was opened, the condition of the peritoneum observed, quantity of peritoneal fluid noted and specimens

of the latter collected for microscopical and cultural examination. The duodenum was ligatured in two places and the intestine divided between the loops: the rectum was next dealt with in similar fashion and then the whole of the intestines were removed. All the remaining abdominal organs were examined in turn and film preparations and cultures put up therefrom.

The intestines were washed through with tap water and the contents collected and examined for worms, ova, etc.; the walls then split from end to end and the mucous membrane inspected, and film preparations and cultures established from abnormal areas, if such were present.

The gall and urinary bladders were seared with a red-hot iron, punctured through the seared area by sterile wide-bore needle attached to a 10 c.c. all-glass syringe, and some of the contents collected for examination by microscopical and cultural methods.

Following on the examination of the peritoneal cavity the chest was opened and the condition of the pleural cavity and pericardium noted. Lung tissue was then examined microscopically and culturally.

The right ventricle was opened under aseptic precautions and blood collected for microscopical and cultural examination and also for serological observations.

Finally, the calvarium was removed, the spinal canal opened and cultures prepared from the cerebro-spinal fluid. Then the cerebro-spinal tissue was removed *en bloc* for macro-, micro- and bacterioscopic examination, and in the case of dogs K, L, M and N portions were selected from the motor cortex, temporal lobe, pons cerebellum and spinal cord and after fixing and hardening were sectioned. The sections were stained (*a*) with hæmotoxylin and eosin, (*b*) a modification of the Nissl method.

SECTIONES CADAVERUM.

Dog "D." July 12th, 1926.

Variety: Pointer. Sex: Dog. Age: 2½ months.

General Condition ..	Well nourished.
Skin	Normal; no acari.
Hair	
Ears	
Pleural Cavity ..	No excess of fluid; cultures sterile.
Thymus	No abnormality observed naked eye.
Trachea and Bronchus	
Lungs	

Heart	Normal.
Pericardium ..	No excess of fluid ; cultures sterile.
Heart Blood ..	Sterile.
ABDOMINAL CAVITY ..	Large excess of clear, serous, peritoneal fluid, which microscopically showed the presence of endothelial cells and a few leucocytes, together with Gram positive diplo- and tetra-cocci. Cultures : *Staphylococcus albus* (or *citreus*), associated with a few colonies of *Sarcina fæcalis* and *Bacillus coli*.
Liver	No abnormality observed naked eye or in microscopical films.
Gall Bladder ..	
Spleen	Cultures remained sterile up to the end of seven days' incubation at 37° C.
Pancreas	
Kidney	
Urine	Microscopically, nothing abnormal noted. Cultures : Scanty growth of *Staphylococcus albus*.
Intestines	Nothing abnormal noted throughout entire length.
Fæces	Apparently normal. Cultures : No abnormal bacteria detected ; the growth comprised *B. coli* and *Streptococcus fæcalis* in normal ratio.
NERVOUS SYSTEM.	
Cerebro-spinal Fluid ..	No abnormality observed naked eye or in microscopical films.
Brain	Cultures remained sterile up to the end of seven days' incubation at 37° C.
Spinal Cord	

DOG "G." NOVEMBER 13TH, 1926.

Variety : Lurcher. Sex : Dog. Age : Full grown.

GENERAL CONDITION ..	Poor.
Skin	Extensive follicular mange.
Hair	
Ears	
PLEURAL CAVITY ..	No excess of fluid.
Thymus	No abnormality observed naked eye.
Trachea and Bronchus	
Lungs	

Heart	Normal.
Pericardium ..	No excess of fluid; cultures sterile.
Heart Blood ..	Sterile.
ABDOMINAL CAVITY ..	No excess of peritoneal fluid; cultures sterile. No engorgement of peritoneal or mesenteric vessels.
Liver	No abnormality observed naked eye or in microscopical films.
Gall Bladder	Cultures remained sterile up to the end of seven days' incubation at 37° C.
Spleen	
Kidney	No abnormality observed naked eye. Direct film from cut surface: Gram negative bacilli. Cultures: *B. coli* and *Streptococcus longus*.
Urine	Microscopically a few spermatozoa were noted. Cultures remained sterile.
Intestines	Normal from duodenum to just below cæcum; thence onwards down to the lower end of the rectum small areas of hyperæmia; descending colon mucous membrane thickened, œdematous, in places ulcerated. One large tapeworm encountered. Cultures from ulcers: *B. coli*, *Streptococcus brevis* and *Streptococcus longus* (non-hæmolytic).

NERVOUS SYSTEM.

Cerebro-spinal Fluid ..	No abnormality observed naked eye or in microscopical films.
Brain	Cultures remained sterile up to the end of seven days' incubation at 37° C.
Spinal Cord	

REMARKS.

Blood serum tested against the *Streptococcus* isolated from (*a*) kidney, (*b*) intestinal ulcers, failed to show the presence of specific agglutinins.

DOG "K." MARCH 8TH, 1927.

Variety: Terrier. Sex: Bitch.

GENERAL CONDITION ..	Good.
Skin	Normal; no acari.
Hair	
Ears	

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PLEURAL CAVITY ..	Normal; no excess of fluid.
Thymus	Remnants only: sterile.
Trachea and Bronchus	Normal.
	Cultures: *Staphylococci* and *Sarcinæ*.
Lungs	Normal.
Heart	
Heart Blood ..	Dark; cultures sterile.
ABDOMINAL CAVITY ..	No excess of peritoneal fluid; cultures sterile.
Liver	No abnormality observed naked eye or in microscopical films.
Gall Bladder	
Spleen	Cultures remained sterile up to the end of seven days' incubation at 37° C.
Kidney	
Urine	Microscopically, nothing abnormal noted; cultures remained sterile.
Intestines	Normal throughout entire length. Some segments of tapeworm encountered.
NERVOUS SYSTEM.	
Cerebro-spinal Fluid ..	The spinal canal appeared "dry."
Brain	No abnormality observed naked eye or in microscopical films.
Spinal Cord	Cultures remained sterile up to the end of seven days' incubation at 37° C.

REMARKS.

Brain and spinal cord sectioned and examined by Dr. Symonds.

DOG "L." MARCH 8TH, 1927.

Variety: Brown Dog. Age: Full grown.

GENERAL CONDITION ..	Good.
Skin	Normal; no acari.
Hair	
Ears	
PLEURAL CAVITY ..	No excess of fluid.
Thymus	Very big; cultures sterile.
Trachea and Bronchi	Congested.
	Cultures: A Gram negative coccus of the catarrhalis group and a filamentous Gram negative bacillus (*Bacillus bronchisepticus*).
Lungs	Normal; cultures sterile.
Heart	Normal.

Pericardium ..	No excess of fluid.
Heart Blood ..	Dark; cultures sterile.
ABDOMINAL CAVITY ..	No excess of peritoneal fluid. Cultures: Gram negative cocco-bacillus (*B. coli*).
Liver	No abnormality observed naked eye or in microscopical films.
Gall Bladder	
Spleen	Cultures remained sterile up to the end of seven days' incubation at 37° C.
Kidney	
Urine	Microscopically, nothing abnormal noted; cultures remained sterile.
Intestines	Normal throughout entire length. Large, mature tapeworm encountered.
NERVOUS SYSTEM ..	Macroscopically normal, save for engorgement of cerebral and meningial vessels (? chloroform vapour).
Cerebro-spinal Fluid ..	No cerebro-spinal fluid was collected.
Brain	No abnormality observed naked eye or or in microscopical films.
Spinal Cord	Cultures remained sterile up to the end of seven days' incubation at 37° C.

REMARKS.

Brain and spinal cord sectioned and examined by Dr. Symonds.

DOG "M." NOVEMBER 7TH, 1927.

Variety: Foxhound. Sex: Dog.

GENERAL CONDITION ..	Normal.
Skin	Normal; no acari.
Hair	
Ears	
PLEURAL CAVITY ..	No excess of fluid.
Thymus	Normal.
Trachea and Bronchus	
Lungs	
Heart	
Pericardium ..	No excess of fluid.
Heart Blood ..	Fluid and dark. Cultures: *Streptococcus pyogenes longus*.
ABDOMINAL CAVITY ..	No excess of peritoneal fluid. Cultures: Scanty growth (in three tubes) of *Streptococcus pyogenes longus*, associated in the remaining tubes with *B. coli*.

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Liver	*Post-mortem* congestion.
Gall Bladder	No abnormality observed naked eye or in microscopical films.
Spleen	Cultures remained sterile up to the end of seven days' incubation at 37° C.
Kidney	
Urine	Microscopically, nothing abnormal noted; cultures remained sterile.
Intestines	Many rings of congestion all along small intestine; no actual ulcer or large hæmorrhage; no worms.
Fæces	Cultures: *B. coli* and *Streptococcus brevis*.

NERVOUS SYSTEM.

Cerebro-spinal Fluid ..	No excess of cerebro-spinal fluid. No external signs of inflammation.
Brain	Cultures from cerebral tissue gave a growth of *Staphylococcus albus* and *Streptococcus longus*.
Spinal Cord	

REMARKS.

Brain and spinal cord sectioned and examined by Dr. Symonds.

DOG "N." JANUARY 2ND, 1928.

Variety: Whippet (from Liverpool). Sex: Bitch.

GENERAL CONDITION ..	Good.
Skin	Normal; no acari.
Hair	
Ears	

PLEURAL CAVITY.

Thymus	No abnormality observed naked eye.
Trachea and Bronchus	Cultures remained sterile up to the end of seven days' incubation at 37° C.
Lungs	
Heart	Normal.
Pericardium ..	Distended with dark, blood-stained fluid. Microscopically: Leucocytes and Gram positive chain cocci. Cultures: *Streptococcus pyogenes longus (hæmolyticus)*.
Heart Blood ..	Dark; fluid. Cultures: *Streptococcus pyogenes longus (hæmolyticus)*.

ABDOMINAL CAVITY.

Liver	No abnormality observed naked eye or in microscopical films.
Gall Bladder	Cultures remained sterile up to the end of seven days' incubation at 37° C.
Spleen..	Slightly enlarged, but not altered in consistency. Cultures: *B. proteus* only.
Kidney	No abnormality observed naked eye. Cultures remained sterile.
Urine	Bladder empty.
Stomach	Distended with gas; contained no food.
Intestines	Normal throughout entire length; no hæmorrhage, congestion or ulceration; no worms.

NERVOUS SYSTEM.

Cerebro-spinal Fluid..	No cerebro-spinal fluid was obtained.
Brain	Slight congestion of meningeal vessels.
Spinal Cord	

REMARKS.

Brain and spinal cord sectioned and examined by Dr. Symonds.

EXAMINATION OF THE CENTRAL NERVOUS SYSTEM.

Dr. C. P. Symonds reports as follows:—

"The sections I examined were from the brains and spinal cords of four dogs, K, L, M and N.

"On external examination and inspection of naked eye sections none of these brains showed any abnormality.

"The meninges in dogs K, L and M showed no abnormality. In dog N there was striking engorgement of the meningeal vessels, but no perivascular exudate.

"Apart from a moderate degree of capillary engorgement in all the sections from dog N, no abnormality could be seen in any of the sections, except in the nerve cells. Whereas those of the spinal cord, brain stem and cerebellum appeared normal, the cells of the cortex in all four cases showed degenerative changes of the type generally seen in toxic encephalopathies, viz. swelling and eccentricity of the nuclei, chromatolysis and satellitosis.

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" The distribution of these changes appeared to be general throughout the parts of the cortex examined, but only a comparatively small proportion of the cells were affected.

" There was no perivascular cuffing with lymphocytes or plasma cells seen in any of these sections, nor were any abnormal forms of glia-cell seen."

Clinical Articles

Rupture of the Diaphragm in the Dog—Three Cases.

By JOHN STEWARD.

Class D, Royal Veterinary College, London.

Case I.

SUBJECT.—A terrier dog about 10 or 12 months old.

HISTORY.—Run over by a car on November 14th, 1927, and seen later that day.

SYMPTOMS.—The dog was quite conscious and the visible mucous membranes were pallid. The most prominent symptom was severe dyspnœa, the dog having great difficulty in breathing and the respirations being markedly abdominal in character.

DIAGNOSIS.—Ruptured diaphragm and internal hæmorrhage.

PROGNOSIS.—Doubtful and withheld—a definite decision as to destruction or treatment was to be made the next morning and in the meantime the dog was given grs. ¡ morphine hydrochlor subcutaneously to ease the pain. The next morning the dog was found dead, having vomited a small quantity of blood.

POST-MORTEM EXAMINATION revealed a considerable amount of hæmorrhage into both the peritoneal and mediastinal cavities and a rupture of the diaphragm extending downwards from between the pillars towards the centre and about two inches in length.

Case II.

SUBJECT.—A large terrier dog aged nine years, run over the loins by a car about two hours prior to being brought to the College.

SYMPTOMS.—The dog was semi-comatose on admission and the visible mucous membranes were very pallid. Great dyspnœa was noticeable, the respirations being very laboured and particularly abdominal in type. Pulse weak. There was a serous swelling in the inguinal region.

DIAGNOSIS.—Internal hæmorrhage and ruptured diaphragm with a tentative diagnosis of rupture of the liver as being the cause of the hæmorrhage.

PROGNOSIS.—Unfavourable and destruction was advised and immediately carried out.

POST-MORTEM EXAMINATION.—There was considerable hæmorrhage into the peritoneal cavity. The spleen was found ruptured and almost divided into two across its narrowest portion.

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There was a rupture in the diaphragm of about 1½ to 2 inches long on the left side of the middle line immediately to the left of the hiatus aorticus and commencing just below the vertebræ.

There was bruising with blood extravasations in the roof of the thorax from the ninth rib backwards to the diaphragm near the rupture and also some bruising around the right kidney.

There was a rupture of the liver about one inch long on the diaphragmatic surface of the right central lobe and the fissure was plugged with a blood clot. The stomach was full, this no doubt contributing in the causation of the rupture in the diaphragm in conjunction with the compression of the viscera suffered by the animal when the car passed over him.

Both *post-mortem* examinations were carried out within 12 hours of death and the ruptures in each case were *ante-mortem*, as judged by the vascular changes seen in their edges.

The second case was exhibited as a *post-mortem* specimen at the Meeting of the Royal Veterinary College Medical Association on February 14th, 1928.

Case III.

SUBJECT.—A terrier dog aged 18 months.

HISTORY.—Run over by a motor cycle on March 30th, 1928.

SYMPTOMS.—Mucous membranes anæmic. Respirations were very distressed with exaggerated flank movements, especially on expiration; and there was most marked expiratory dyspnœa.

The dog also showed a compound fracture of the near hind femur in its lower third with protrusion of the upper portion of the bone through the skin.

DIAGNOSIS.—Fracture of the femur and rupture of the diaphragm.

PROGNOSIS.—Unfavourable. Destruction was advised and carried out.

POST-MORTEM EXAMINATION.—The liver showed several areas of sub-capsular hæmorrhage and the diaphragm an extensive rupture of about 3½ to 4½ inches long and the stomach and spleen were found in the left side of the chest; there was about a handful of ingesta in the stomach and the chest cavity contained a considerable amount of blood.

Abstracts

Animal Breeding Research.*

It is always difficult for the senior member of a group, being himself intellectually active, not to obscure the personalities of his younger colleagues, not to embarrass their development. Tradition, sentiment, legitimate personal ambition, make it so easy for the leader of a company to become parasitic upon the rest. It requires the exhibition of a high degree of intellectual asceticism for such a one to stand aside and permit the younger man to pass on to the prize or to the pitfall that should be his. . . . My task must be that of securing my own intellectual development in order that I may quickly detect the potentialities of my colleagues and secure for them ample opportunities for the fullest self-expression.

I propose to put before you certain thoughts of mine concerning the organisation and function of such a department as this and concerning the relationship which, in my opinion, should exist between the community and the professional biologist employed by the State to secure and democratise knowledge concerning scientific principles having reference to human affairs.

In olden days, when the social and economic conditions of the countries were very different from those which obtain to-day, noblemen had rhymesters and songsters in their retinues, and the churches employed artists to depict their ideals. Organised science was not. To-day the peoples are suffering from the misery of boots ; economically their feet are pinched and the irritation is preventing them from paying sufficient attention to the things that are not bread. It is becoming generally agreed that a certain standard of material prosperity is indispensable for the spiritual advance of individuals and of nations, that there can be no real cultural progress until the level of the material aspects of social life is raised, and the leaders of the peoples are preaching that the improvement of the material aspects of the social environment is the most effective means to social progress. All forms of government now assume that through science alone can mankind hope to control its material and social surroundings and so bring spiritual attainment within reach of all.

And so it is that to the scientist to-day there are given those opportunities for self-expression which in other days were the birthright of the artist. The influence of the science and of the scientist in

* Extract from an address by Dr. F. A. E. Crew, Director of the Animal Breeding Department of the University of Edinburgh, to the Imperial Agricultural Research Conference.

the fashioning of social policy is being more and more felt. The day of the demagogue, of the legalistically-minded, who hitherto have dominated social endeavour, is passing, and government of nations and of herds is no longer merely the administration of established procedures. Governments are hastily organising opportunities for the reinforcement of the crafts of human, animal and plant husbandry by the sciences, knowing that science to-day is the most influential factor in human thought and actions, that it is the persistently radical factor in society, giving new worlds for old, disregarding precedent, eroding the traditions that tend to keep society within the narrow bounds of unquestioned convention. There is grim humour in the thought that those who seek biological endorsement for their sociological prejudices may find that science whose aid they ask may ultimately be the cause of the complete disruption of their theories concerning social organisation.

The practical man previously has shown but little care for the thoughts of the scientist or philosopher unless these could be turned to economic account, but this is no longer the case, and the scientist to-day is expected, through the expression of his personality, to provoke such changes in human thought and attitude that the methods as well as the achievements of science shall become appreciated. It is becoming recognised that whatever use may be made of scientific discovery, science itself is a species of theoretical knowledge and not an art or craft. The material benefits of science, useful as they have been both to science and to the community, are insignificant when compared with the spiritual development of mankind which science has made possible.

My departmental life has taught me that it must remain my chief duty to demonstrate to the people that an understanding of science is the greatest legacy that one generation can bequeath to its successor. This duty is rendered somewhat irksome because the people are trained by their press and by their politicians to become interested in and be entertained by the personalities of the scientists who are paid out of public monies. The public and their leaders demand that not only shall the state-fed goose lay golden eggs, but also that the laying shall be performed in public and shall be amusing. So it is that we, who are forced to beg for opportunity, must gild the work we do or hope to do, and we stand in grave danger in our attempts to please the insistent public of deceiving ourselves, of losing the humility and the reverence that are the characteristics of those who truly tend the lamps that stand on the altar of knowledge.

It is clear that the future of animal and plant husbandry, especially in the tropical parts of the Empire, depends upon a proper application

of scientific knowledge, and schemes of all kinds are being perfected which shall enable man to assert predominance in those regions of the globe where the climate gives such an initial advantage to his cold-blooded rivals, the insect and plant pest. The greatest activity prevails and the quest for specific knowledge and specific remedy is being followed so eagerly that one begins to wonder whether it is not being forgotten that behind all the detail there is to be sought a body of general principle. Knowledge is being sought in order that life may be controlled. Those of us who are concerned with the disclosure of knowledge which will give in the hands of others the powers of a god are interested in the question as to what will be done when this control has been gained. Will mankind continue to occupy itself with purely superficial palliatives, politics, methods of distribution and of administration ? Will man merely develop a greater efficiency without changing his standard of values and his essential aims, these remaining as trivial and unsatisfactory as they are to-day. There is no joy for some of us in the thought that through the acquisition of a greater efficiency mankind may create nothing but a more exciting world. Efficiency will never be enough ; it must be used by man for the provision of opportunities for the employment of his faculties at the highest pitch in work and in ample recreation. Unless all this research brings to mankind greatly increased capacity for feeling and for thinking and for exercising these faculties, then it will not have been worth while If it merely provides more money for the construction of battleships which will embarrass the development of science and of civilisation, both in this country and in that of those of my colleagues who, I shall be taught, are the enemies of the ideals for which Britain stands, then I for one shall not be satisfied. The professional scientist is not the leader of the peoples to the lands of milk and honey ; he is employed in the manufacture of synthetic varieties of these delectable commodities. We who are concerned with the making and the mending of the roads along which mankind is being led towards its destiny do not know whither these roads lead. It is reasonable for us to ask if the politician knows, for we hold him responsible.

It was recognised by the State that, though the period of active reconstructional breeding had not arrived, it was desirable by encouraging and making possible extensive analytical breeding work to ensure that when the time did come adequate knowledge of the genetic properties of the stocks of domesticated animals would have been previously secured. It so chanced that I was placed in charge of this department. At that time I was scientifically of no account. The war had removed the younger men of achievement and those of us who were left had little but promise. I soon realised that either I

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must exhibit a considerable political activity, collecting around myself material possessions, bedecked with promises of great accomplishment, or else I must devote myself to scientific investigation and seek not success, leaving it to others to recognise without prompting the value of the growing department. I chose the latter course, and so it is to-day that we have so little to show you beyond ourselves. We have no laboratories of our own, no farm, animals so few that no critical genetical investigation could be undertaken with them; the staff of the department is numerically as small as the size of the average British family, and the salaries of some of them are such as would tempt no self-respecting scavenger to leave his job. But the time of our metamorphosis is at hand. We can claim to have achieved a certain degree of success as we choose to define it. The record and the promise of the department have attracted the sympathetic attention of a private benefactor in the person of Lord Woolavington, of that organisation which is doing magnificent things for science and for humanity, the International Education Board of America, of the Empire Marketing Board, and of the Highland and Agricultural Society. Furthermore, the University of Edinburgh is doing us the honour of accepting us as a department of itself. We have carried the department into a University to one of whose teachers, Professor Cossar Ewart, this department is so greatly indebted. Soon we shall be given opportunities for greater service and shall flourish in an atmosphere which has already become very precious to us. We have served seven years for our Rachel; we have no reason to think that we shall find her to be unworthy now we are about to claim her.

Early in the departmental history I decided that its director must be a man who would on his own merits attain eminence in his own science, not necessarily in organisation and administration, and that he must be and remain a working scientist and not become a Holy Wren. I foresaw that he must be one who could attract and keep some half-a-dozen young men of promise and that to these he must give freedom tempered with idealism. I am going to show you the only monument I desire—my colleagues. In their personalities and in their remarks they will illustrate my conception of the function of this department—to secure and to democratise knowledge concerning the physiology of reproduction and of inheritance, with special reference to animals of economic importance, through the genetical analysis of breeds and breeding methods, through the experimental application of the principles and practices which result from the study of laboratory animals to the case of the animals of the farm, and through the search for new knowledge by means of critical experimentation with convenient material.

Recognising the value of the intellectual interexchange between scientific guests and members of the staff, it is my intention to extend the facilities within the department for the entertainment of post-graduates from other countries who shall come to us to make personal contact with us, to carry out in our company appropriate investigation, and to gain a first-hand acquaintance with British breeds and breeders. Until the atmosphere of this department is international, I shall not be content. The livestock breeder has learned that science recognises no political boundaries and most of the help that the British breeder has gained through this department has come from some other country.

I am not of the opinion that the activities of my Department are likely to evoke, in my time, any considerable changes in breeding practices, since the need for changes in breeding and in husbandry is at the present time not nearly so acute as is the need for greater efficiency in the business side of farming. It is ever necessary to state clearly that, in the opinion of the geneticist, the ultimate value of his science to agriculture will be found to consist quite as much in the new methods which it introduces and in the general point of view towards living things which it creates, as in any specific addition to the number of the breeds and the varieties of stock. The livestock population of the whole world is the experimental material of the animal geneticist, and the breeders should be his collaborators. Before this can be so, there must be a sympathetic understanding between breeder and biologist. The prejudices of each must be considered by the other. The breeder who is successful is successful because primarily he is a fancier and not a financier. A man does not keep a particular breed of animals merely for the reason that it is financially profitable to keep them. Of course, it is necessary in most cases that it should be profitable, but that is not the consideration which is stressed by the fancier, for he is at great pains to assert, even violently, that the breed he prefers is of all breeds the best. It is because the breeder is a fancier—a biologist—that contact with him can so readily be made if he be approached properly by one who also is a student. Commonly the breeder is suspicious and sceptical, excepting adverse criticism and unwelcomed patronage, and this attitude has to be corrected. The chemist and the physicist may speak to the general public without fear of interruption or of disagreement, for in the atom and electron there is great magic, but let the biologist, particularly the geneticist, speak of the bearing of his science upon human affairs, and commonly his voice is at once drowned in the contradiction of practical men; sex-biology is pre-eminently the field in which any and everyone claims the right to air his or her particular theories; uncritical, impressionistic, anecdotal evidence is violently used to

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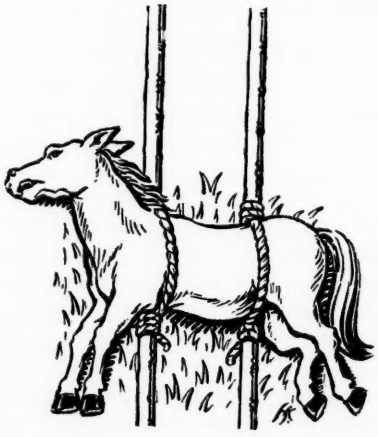
overthrow the conclusions of dispassionate experimentation. One must walk warily, avoiding unprofitable controversy with the permanently prejudiced, not opposing argument by argument, but quietly and continuously demonstrating verifiable fact which cannot be denied.

(Reprinted from the December issue of the "Scientific Worker."

Directions for Raising a Horse without Pulleys.

Two poles are pushed under the recumbent horse across the long axis of the body; one a hand's breadth in front of the hind limbs and the other the same distance behind the fore limbs. The poles must be 3 to 3½ metres long so that they project out 10 to 20 cm. beyond the length of the limbs and twice as far on the other side. A rope is knotted on to the baulks as shown in the illustration and carried over the back of the horse and firmly knotted. The lifting



up is accomplished by a man being put at the shorter ends of the poles to prevent these slipping and two men lift slowly and evenly at the word of command on the long ends of the poles. One man is at the horse's head. Without any great exertion with the help of these two levers a heavy horse can be got up in a short time. Should the horse not stand up it can be put down again quietly and comfortably, the ropes preventing it from slipping out when the poles are erect.—*Veterinär-Medizinische Berichte.*

Abstracts of Current Literature

Neseni, Dr. R.—Magnesium Salts for Destroying Dogs.—*Präger Archiv. fur Tiermed.* Dec. 15th, 1927.

FOLLOWING Jakob's researches (D.T.W., 1916 and 1917), I used magnesium sulphate, the whole time after the war, for destroying dogs. In dogs weakened by previous disease the effect was prompt. Not so successful with dogs which were healthy and which for extraneous reasons had to be destroyed. In German sheep dogs rather large quantities of highly concentrated solution were injected, and the result was a slower death. Since the reports of Jensen and Slawoff (T.R., 1927, No. 5) I have used magnesium nitrate pure (Merck) in several animals. This salt dissolves in a two in one solution which is highly concentrated. The injection is made intracardially on the left side of the breast in the fifth intercostal space at the level of the elbow joint. As doses J. & S. give three drachms for dogs weighing 25 lbs. and 1½ drachms for dogs under 25 lbs. I am using these doses now and in big strong sheep dogs and in most cases death occurs during the injection or shortly after. Convulsions, kicking or signs of pain were not noticed.

(1) Work with magnesium salts, unlike that with prussic acid, is quite without danger.

(2) The price per dose is only about 10 pence to a shilling.

(3) The flesh of dogs killed thus is fit for use, so I prefer to use magnesium salts rather than prussic acid. Many graduates will wonder at this last point, but here on the boundary of Saxony dog flesh forms a very much desired dainty among the poorer folk.

Pardubsky, Prof. K.—Implantation of Pieces of Ovary in a Cryptorchid.—*Präger Archiv. f. Tiermed.* Part A, Vols. 3 and 4, 1927.

STEINACH'S experiments in implanting part of an ovary into a castrated guinea pig to produce female characteristics induced the Professor to adopt similar procedure in a cryptorchid.

On May 15th, 1923, a right-sided abdominal cryptorchid, light bay with star, two years old, was brought to the surgical clinic of the Veterinary School in Brünn. The horse had been castrated on the left side. It was savage and a biter, would not be groomed, jumped other horses, would not work double and in short was valueless. On present grounds (very hot summer, spring coughing in the stable, etc.) it was not possible to perform the typical abdominal cryptorchid operation. The owner was fed up with the horse and did not want it back as it was. He was told we would perform an experimental

operation on it with the object of removing its evil habits. Nothing, however, was guaranteed.

On June 17th, 1926, a mare destined for slaughter was brought in, killed and the abdomen quickly opened. The cryptorchid had been previously narcotised and put on the operating table. The whole fore part of the chest was shaved and disinfected with iodobenzine and tincture of iodine. Quickly a sterile ovary was taken away and cut up into four pieces the size of two beans. At the same time an incision 6 c.m. long and deep was made in the chest, the edges of the wound held apart with forceps and a piece of ovary inserted into the muscle in the depths of the wound. A similar piece was inserted in the same way on the opposite side, and two other pieces of ovary inserted subcutaneously in the chest region.

Immediately afterwards skin comb sutures (according to Bayer) with Michels clamps were inserted. The removal of the ovary and cutting up of the organ and the whole manipulation were carried out without any part coming in contact with the hands and the work was done with sterile knives, forceps and scissors.

Three out of the four implanted pieces of ovary healed up per primam. The horse left the clinic seven days after. The owner was to report any bad result, the state of the animal's health, and whether there was any change in his disposition.

On August 27th, 70 days after the operation, the owner reported that he was pleased with the result, the wounds had healed, that the horse would have his harness on and was visibly quieter. On January 16th, 1927, he no longer reared when brought out or taken in and was quiet with other horses.

Two hundred and sixteen days afterwards it had become quieter still. It did not attempt to jump other horses. It could be quietly groomed and the harness put on easily. It is interesting to note that within six months of the implantation of the ovarian pieces, marked changes in the disposition of the cryptorchid were observed.

Reviews

Government of the Gold Coast Report of the Veterinary Department for the period April, 1926 to 31st March, 1927. Pp. 28. Crown Agents for the Colonies, 4, Millbank, London, S.W.1. Price 2s.

PART I deals with administrative matters.

We learn that the staff of the Veterinary Department at the commencement of the period under review consisted of four veterinary officers and one British superintendent of livestock.

During the course of the year, two British veterinary officers were added to the staff and one retired on account of ill-health.

Allusion is made to other items such as promotions amongst the native staff, the personnel of the various sections, and the increase of correspondence passing through the headquarters office.

The names of the staff of the Veterinary School and the number of hours spent in teaching are given. It seems that the British personnel are called upon to spend more time in this way than the number of students would appear to warrant.

A staff of three sergeants and thirty-eight men were employed during the period under review in cattle patrol work, dealing with cattle-plague and smuggling.

Outbreaks of cattle-plague have occurred in the various sections, and the difficulties of dealing with this disease were increased by a shortage in the supply of anti-rinderpest serum which the French laboratory at Bamato had undertaken to supply. Moreover, shortage of staff and efficient means of transport were factors which had to be overcome.

Figures showing the numbers of cattle subjected to the various methods of inoculations are shown, and one observes that the glycerinated bile method of conferring immunity was used with doubtful success.

Efforts are being made to improve the breeds of cattle by castration of unsuitable male animals and the provision of more suitable stock animals.

Other diseases dealt with included Anthrax, Epizootic Lymphangitis, Foot and Mouth Disease, Habronemiasis Mange, Myiasis, other parasitic and protozoan diseases, and distemper.

We observe with pleasure that the standard of meat inspection observed at the Tamale Abattoir is a high one.

References are made to various items of animal husbandry, and a comprehensive list of appendices give statistics relating to the activities of the various departments.

Contributo allo Studio dei Bovini Preistorici. By PROFESSOR DOMENICO BRENTANA, Director of the Laboratory of Zootechny at the R. INSTITUTO SUPERIORE DI MEDICINA VETERINARIA DI PARMA. Torino: Fratelli Bocca. Pp. 63, illustrated. 1927.

THIS publication deals in a most interesting manner with the author's work on prehistoric horned cattle. It is introduced by a short account of the known facts relating to the subject, and the author, admittedly confining himself largely to Italian work, gives his readers what is in the main a concise and balanced statement concerning the facts that have already been ascertained. In a comparatively brief space the most important developments are very satisfactorily treated.

The author then gives an account of measurements and observations carried out by himself on the remains of prehistoric heads and horns, and two pages are devoted to a summary of the conclusions arrived at. The book is furnished with a useful bibliography, which, although primarily drawn up to cover "texts and observations made in Italy," includes some of the more important works in other languages.

The descriptions are lucid and the illustrations of high quality. The work is well printed, and Professor Brentana is to be congratulated on the whole production.—C.J.P.

News

Royal Society of Medicine.

At a Special General Meeting of Fellows, held in the Society's House, 1, Wimpole Street, London, W., on Tuesday, March 20th, 1928, at 5.30 p.m., the following alterations in the By-laws made by the Council of the Society were confirmed :—

By-law I, 5.—That By-law I, 5 be altered from—

The Fellowship of the Society shall be restricted to registered medical practitioners of the United Kingdom and to others whose qualifications or scientific attainments are satisfactory to the Council.

to

The following are eligible as candidates for Fellowship of the Society :—

(*a*) Medical practitioners registered in the United Kingdom of Great Britain and Northern Ireland.

(*b*) Dental practitioners registered in the United Kingdom of Great Britain and Northern Ireland.

(*c*) Veterinary practitioners registered at the Royal College of Veterinary Surgeons.

(*d*) Medical practitioners who prove to the satisfaction of the Council of the Society that, at the time of application, they are duly registered in a country within the British Empire, and who furnish such further particulars as shall satisfy the Council of their eligibility for candidature.

(*e*) Others (not specified above) who shall satisfy the Council as to their qualifications and scientific attainments.

By-law I, 8.—That By-law I, 8 be altered from—

The Membership of any Section of the Society shall be restricted to registered medical practitioners of the United Kingdom, and to others whose qualifications or scientific attainments are satisfactory to the Council of the Society.

to

The following are eligible as candidates for Membership of any Section of the Society :—

(*a*) Medical practitioners registered in the United Kingdom of Great Britain and Northern Ireland.

(*b*) Dental practitioners registered in the United Kingdom of Great Britain and Northern Ireland.

(*c*) Veterinary practitioners registered at the Royal College of Veterinary Surgeons.

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(*d*) Medical practitioners who prove to the satisfaction of the Council of the Society that, at the time of application, they are duly registered in a country within the British Empire, and who furnish such further particulars as shall satisfy the Council of their eligibility for candidature.

(*e*) Others (not specified above) who shall satisfy the Council as to their qualifications or scientific attainments.

BY-LAW VI, 1.—That By-law VI, 1 be altered from—

1. Every Fellow shall, subject to future by-laws, upon election, pay an Admission Fee of two guineas, except in the case of a Member of a Section who has already paid the Admission Fee of two guineas, and unless he has compounded for his Annual Subscription by the payment of Seventy-five Pounds, he shall, subject to future by-laws, pay annually to the Society the annual subscription at the following rates: (1) If he is resident abroad the annual subscription of three guineas or its equivalent.* (2) If he is resident or practising in the United Kingdom, but outside the London Postal Area, a subscription of four guineas or its equivalent.* (3) If he is resident or practising within the London Postal Area a subscription of five guineas or its equivalent.*

to

1. Every Fellow shall, subject to future by-laws, upon election, pay an Admission Fee of two guineas, except in the case of a Member of a Section who has already paid the Admission Fee of two guineas, and he shall, subject to future by-laws, pay annually to the Society the annual subscription at the following rates: †(1) If he be resident abroad the annual subscription of three guineas or its equivalent.‡ (2) If he be resident or practising in Great Britain or Ireland, but outside the London Postal Area, a subscription of four guineas or its equivalent.‡ (3) If he be resident, practising or holding an appointment within the London Postal Area, a subscription of five guineas or its equivalent.‡

* *Id est*: certain Fellows had compounded for the subscriptions of the amalgamated societies and are exempted *pro rata*: a Fellow who had compounded for one guinea pays one guinea less than the full subscription; a Fellow who had compounded for two guineas pays two guineas less than the full subscription; a Fellow who had compounded for three guineas pays three guineas less than the full subscription.

† Except in the case of a Fellow who has compounded for his subscription by a payment of £75 previously to October, 1927.

‡ *Id est*: certain Fellows had compounded for the subscriptions of the amalgamated societies and are exempted *pro rata*: a Fellow who had compounded for one guinea pays one guinea less than the full subscription; a Fellow who had compounded for two guineas pays two guineas less than the full subscription; a Fellow who had compounded for three guineas pays three guineas less than the full subscription.

BY-LAW X, 1.—That By-law X, 1 be altered from—

1. The Council shall be and is hereby empowered from time to time and at its sole discretion to elect medical men and women (whether British or otherwise) who within five years of their first professional qualification apply for election, to be non-corporate Associates of the Society.

to

The Council shall be and is hereby empowered from time to time and at its sole discretion to elect medical, dental and veterinary practitioners (whether British or otherwise) who within five years of their first professional qualification apply for election, to be non-corporate Associates of the Society.

The above is a direct testimony to the kindly spirit which exists between the medical Fellows of the Royal Society of Medicine and their Veterinary colleagues; and this may legitimately be put down to the success which has followed the formation of a Comparative Section of Medicine, which, although the youngest of the 24 sections is one of the largest, most vigorous and best attended of any. The promulgation of the idea of a common ground for the discussion of problems of diseases common to animals and man has done very much towards promoting a cordiality of friendship between medical men and veterinarians; and the Comparative Section of the Royal Society of Medicine can justly claim that in this respect it was the pioneer.

Notices

Royal Army Veterinary Corps Point-to-Point Challenge Cup.

(Winner, Challenge Cup and 75 per cent. of sweepstake; second, 25 per cent. of sweepstake), for horses the property of, or Government chargers or troop horses hired once 1st March, 1928, of officers of the R.A.V.C. (Regular or Territorial) on the active or retired list, which have been regularly and fairly hunted during the season 1927-28 with a recognised pack of hounds or military drag hounds. No horse is qualified to run that has ever won a race of any description (point-to-point, *bona-fide* hunt and military races excepted).

Weight, 13 stone or over. Entrance 1 sov.

To be ridden by those qualified to enter.

The above race will be run in connection with the Hambledon Hunt Point-to-point Steeplechases on Saturday, April 21st at Liss, which is situated one mile from Liss, five miles from Bordon, and three miles from Petersfield stations.

The course is not less than three miles over a fair hunting country.

Financial aid to meet expenses up to £2 will be paid for horses running that are normally stabled outside a radius of 30 miles from the venue of the race.

Entries close at noon, April 13th, and should be sent, together with the entry fee and hunt certificate to :—

Major R. M. BAMFORD, O.B.E., R.A.V.C.,
Hon. Sec. R.A.V.C. Point-to-Point Association,
Station Veterinary Hospital.
Aldershot.

N.B.—Tea Tickets, price 2s., may be obtained on application to the Hon. Secretary.

R.A.V.C. Annual Dinner.

THE Annual Dinner of officers of the Royal Army Veterinary Corps, past and present, will be held at the Hotel Cecil on Friday, June 15th, 1928, at 8 p.m.

Gentlemen desirous of attending should inform the Honorary Secretary, R.A.V.C. Dinner, War Office, Whitehall, London, S.W.1.

Agricultural and Veterinary Research Scholarships.

THE Ministry of Agriculture and Fisheries invites applications for research scholarships in agricultural and veterinary science. The scholarships are tenable for three years, from October 1st, 1928, and are of the value of £200 per annum ; extra allowances may be made for travelling and subsistence for periods spent abroad. The number to be awarded will not exceed seven, and will depend upon the qualifications of the candidates.

Applications must be received not later than June 15th, 1928, on the prescribed form (930/T.G.), which, together with a copy of the conditions attaching to the scholarships, may be obtained from the Secretary, Ministry of Agriculture and Fisheries, 10, Whitehall Place, London, S.W.1.

Personal

Honour for Major Harry Lepper, J.P., M.R.C.V.S.

CONGRATULATIONS to Major Harry Lepper, J.P., M.R.C.V.S., on his selection by the Lord Lieutenant, to be a Deputy-Lieutenant for the County of Buckinghamshire.

The honour to Major Lepper is well deserved and the veterinary profession has cause to be proud that one of their number has been deemed worthy of so high an honour. He is a very popular colleague and one whose name has been for many years a household word in hunting circles, not only in Buckinghamshire, but in every part of Great Britain and Ireland where sporting and hunting men congregate.

S. African Union's First Woman Veterinary Surgeon.

TO Miss Joan Morice, a Johannesburg girl residing in Parktown North, has fallen the distinction of being the first woman in South Africa to obtain a degree in veterinary science. It seems probable also that she will be the only South African woman veterinary surgeon for some time to come, for Miss Morice told a Rand Pressman that she knew of no woman student at the moment who was taking the course. Dogs, cats, and

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fowls will be Miss Morice's particular care. Asked what were the prospects for women in such a career, she replied that it remained to be shown whether a woman could make good or not.—*African World.*

The Popularity of Capt. Ross Grant, B.V.Sc. and Col. Dunlop Young, O.B.E., D.V.S.M.

SELDOM, if ever, has more cordiality and expression of good fellowship been shown by laymen to members of our profession than was awarded to our colleagues, Capt. Ross Grant and Col. Dunlop Young, on the evening of Monday, the 26th ult.

Capt. Ross Grant was the veterinary official appointed by the Australian Government to look after the interests of the Australian meat trade in this country, and although he has only been three years in London, he has endeared himself to all with whom he has come in contact, not only those with whom he was associated daily in the exercise of his duty, but also amongst his English professional colleagues. The chair was taken by Sir Gordon Campbell, K.B.E. Amongst those assembled to do Capt. Ross Grant honour were Major-General Sir Granville Ryrie, K.C.M.G., C.B., Sir Philip Proctor and Sir Dundas Grant, K.B.E., F.R.C.S., whilst the veterinary profession was represented by Mr. Jackson (chief veterinary inspector of the Ministry of Agriculture), Colonel T. Dunlop Young, Dr. Richelet (of the Argentine Veterinary Service), Mr. J. Stephens and Principal Hobday.

After several very felicitous speeches, Sir Gordon Campbell presented Capt. Ross Grant with a very handsome double-barrelled breech-loading gun as a token that they all thought him a good sportsman, together with a lady's gold wrist watch for Mrs Ross Grant; and the ceremony was unexpectedly continued by a still further token of goodwill to our profession when our popular colleague, Col. Dunlop Young, who is about to depart on a Government mission to Australia and North America, was presented with an inscribed gold cigarette case. The recipients of each gift suitably responded, and the evening was voted by everybody to have been a most enjoyable one.

Errata.

CORRECTION for the March issue. Transpose Figs. 3 and 7. The description Under Fig. 3 should read "The Anatomical Institute of the University of Utrecht," and that of Fig. 7 "Exterior of the Buildings of the University Faculty of Leipzig."

Publishers' Notices

All communications should be addressed to 7 & 8, Henrietta Street, Covent Garden, London, W.C.2. Telephone: Gerrard 4646. Telegrams: "Baillière, Rand, London."

Letters for the JOURNAL, literary contributions, reports, notices, books for review, exchanges, new instruments or materials, and all matter for publication (except advertisements) should be addressed to the Editor.

Copy of advertisements should be in the hands of the publishers—Baillière, Tindall and Cox—not later than the 25th of the month, or if proof is required, not later than 23rd.

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